The University of North Carolina at Charlotte

2001-2003 Undergraduate Catalog

UNCCHARLOTTE

Correspondence Directory

If, after reading this *Catalog*, you have further questions or specific inquiries about the programs of, or admission to, The University of North Carolina at Charlotte, please look below to find the proper office to contact. Address correspondence to any of the offices in care of:

The University of North Carolina at Charlotte
9201 University City Boulevard
Charlotte, North Carolina 28223-0001

INFORMATION

Campus Operator 704-687-2000

Academic Affairs 704-687-2224
Admissions
- Undergraduate 704-687-2213
- Graduate 704-687-3366
- International 704-687-2694

Brocker Health Center 704-687-4617
College of
- Architecture 704-687-2358
- Arts and Sciences 704-687-4303
- Business Administration 704-687-2165
- Education 704-687-4707
- Engineering 704-687-2301
- Information Technology 704-687-3119
- Nursing and Health Professions 704-687-4650

Cone University Center 704-687-2267
Continuing Education and Extension 704-687-2424
Counseling Center 704-687-2105
Dean of Students 704-687-2375
Financial Aid 704-687-2461
Graduate School 704-687-3371
International Programs 704-687-2442
J. Murrey Atkins Library
- Circulation 704-687-2392
- Reference 704-687-2241

Records/Registration 704-687-3487
Residence Life 704-687-2585
Student Affairs 704-687-2206
Summer Programs ..... 704-687-2424 or 4481

EMERGENCY NUMBERS

Campus Police -- Emergency ..... 911 (on campus)
..... 704-687-2200 (off campus)
Director of Public Safety and Non-Emergency Calls 704-687-2282
Health Services (radio contact w/police) 704-687-4617

About This Catalog...

Although the publisher of this catalog has made every reasonable effort to attain factual accuracy herein, no responsibility is assumed for editorial, clerical or printing errors, or errors occasioned by mistakes. The publisher has attempted to present information that, at the time of preparation for printing, most accurately describes the course offerings, faculty listings, policies, procedures, regulations and requirements of the University. However, it does not establish contractual relations. The University reserves the right to alter or change any statement contained herein without prior notice.

Graduation Rate Disclosure Statement. Our data show that 54% of the full-time new freshmen who entered UNC Charlotte in Fall 1994 have received a baccalaureate from this institution or another UNC institution as of Fall 2000. In addition, another 6% were enrolled at this or another UNC institution in pursuit of their baccalaureate degree as of Fall 2000. This information is provided pursuant to requirements of the Student-Right-to-Know and Campus Security Act of 1990.

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Undergraduate Catalog
2001-2003

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The University of North Carolina at Charlotte is open to people of all races, committed to equality of educational opportunity, and does not discriminate against applicants, students, or employees based on race, color, national origin, religion, sex, sexual orientation, age, or disability. Moreover, UNC Charlotte actively seeks to promote integration by recruiting and enrolling a larger number of African-American, Native-American, and other ethnically diverse students.

Academic Calendar 2001-2003

Dates pertaining to changes in enrollment and refunds are included in the calendars that appear in the *Schedule of Classes* each semester and in the summer sessions bulletin.

FALL SEMESTER, 2001

Academic year begins ..... Tuesday, August 14
Orientation, Advising, Registration ..... Wednesday-Friday, August 15-17
First class day ..... Monday, August 20
Labor Day (no classes)(University closed) ..... Monday, September 3
Student recess (no classes) ..... Friday, October 12
Thanksgiving recess (no classes) ..... Wednesday-Friday, November 21-23
Last class day ..... Friday, December 7
Final examinations ..... Saturday, December 8, Monday-Friday, December 10-14
Commencement ..... Saturday, December 15

SPRING SEMESTER, 2002

Orientation, Advising, Registration ..... Sunday-Tuesday, January 6-8
First class day ..... Wednesday, January 9
Martin Luther King Day (no classes)(University closed) ..... Monday, January 21
Spring recess (no classes) ..... Monday-Friday, March 4-8
Last class day ..... Wednesday, May 1
Final examinations ..... Thursday-Saturday, May 2-4, Monday-Wednesday, May 6-8
Commencement ..... Saturday, May 11
Academic year ends ..... Monday, May 13

FIRST SUMMER TERM, 2002

Registration ..... Tuesday, May 22
First class day ..... Wednesday, May 23
Last class day ..... Wednesday, June 26
Final examinations ..... Thursday-Friday, June 27-28

SECOND SUMMER TERM, 2002

Registration ..... Friday, June 28
First class day ..... Monday, July 1
Fourth of July (no classes)(University closed) ..... Thursday-Friday, July 4-5
Last class day ..... Tuesday, August 6
Final examinations ..... Wednesday-Thursday, August 7-8

FALL SEMESTER, 2002

Academic year begins ..... Wednesday, August 14
Orientation, Advising, Registration ..... Wednesday-Friday, August 14-16
First class day ..... Monday, August 19
Labor Day (no classes)(University closed) ..... Monday, September 2
Fall recess (no classes) ..... Friday, October 11
Thanksgiving recess (no classes) ..... Wednesday-Friday, November 27-29
Last class day ..... Friday, December 6
Final examinations ..... Saturday, December 7, Monday-Friday, December 9-13
Commencement ..... Saturday, December 14

SPRING SEMESTER, 2003

Orientation, Advising, Registration ..... Wednesday-Friday, January 8-10
First class day ..... Monday, January 13
Martin Luther King Day (no classes)(University closed) ..... Monday, January 20
Spring recess (no classes) ..... Monday-Friday, March 10-14
Last class day ..... Monday, May 5
Final examinations ..... Tuesday-Saturday, May 6-10, Monday, May 12
Commencement ..... Sunday, May 11
Academic year ends ..... Tuesday, May 13

FIRST SUMMER TERM, 2003

Registration ..... Tuesday, May 27
First class day ..... Wednesday, May 28
Last class day ..... Tuesday, July 1
Final examinations ..... Wednesday-Thursday, July 2-3

SECOND SUMMER TERM, 2003

Registration ..... Thursday, July 3
Fourth of July (no classes)(University closed) ..... Friday, July 4
First class day ..... Monday, July 7
Last class day ..... Friday, August 8
Final examinations ..... Monday-Tuesday, August 11-12

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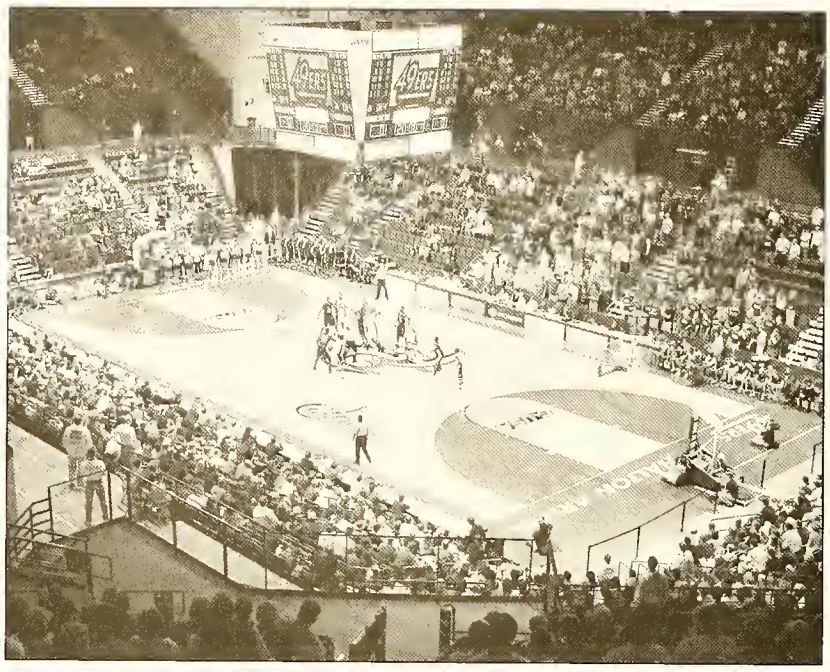


THE UNIVERSITY

HISTORY OF THE UNIVERSITY OF NORTH CAROLINA

In North Carolina, all public educational institutions that grant baccalaureate degrees are part of the University of North Carolina. The University of North Carolina at Charlotte is one of the 16 constituent institutions of the multi-campus state university.

The University of North Carolina, chartered by the N.C. General Assembly in 1789, was the first public University in the United States to open its doors and the only one to graduate students in the eighteenth century. The first class was admitted in Chapel Hill in 1795. For the next 136 years, the only campus of the University of North Carolina was at Chapel Hill.

In 1877, the N.C. General Assembly began sponsoring additional institutions of higher education, diverse in origin and purpose. Five were historically black institutions, and another was founded to educate American Indians. Several were created to prepare teachers for the public schools. Others had a technological emphasis. One is a training school for performing artists.

In 1931, the N.C. General Assembly redefined the University of North Carolina to include three state-supported institutions: the campus at Chapel Hill (now the University of North Carolina at Chapel Hill), North Carolina State College (now North Carolina State University at Raleigh), and Woman's College (now the University of North Carolina at Greensboro). The new multi-campus University operated with one board of trustees and one president. By 1969, three additional campuses had joined the University through legislative action: the University of North Carolina at Charlotte, the University of North Carolina at Asheville, and the University of North Carolina at Wilmington.

In 1971, the General Assembly passed legislation bringing into the University of North Carolina the state's ten remaining public senior institutions, each of which had until then been legally separate: Appalachian State University, East Carolina University, Elizabeth City State University, Fayetteville State University, North Carolina Agricultural and Technical State University, North Carolina Central University, the North Carolina School of the Arts, Pembroke State University (now the University of North Carolina at Pembroke), Western Carolina University, and Winston-Salem State University. This action created the current 16-campus University. (In 1985, the North Carolina School of Science and Mathematics, a residential high school for gifted students, was declared an affiliated school of the University.)

The UNC Board of Governors is the policy-making body legally charged with "the general determination, control, supervision, management, and governance of all affairs of the constituent institutions." It elects the president, who administers the University. The 32 voting members of the Board of Governors are elected by the General Assembly for four-year terms. Former board

chairmen and board members who are former governors of North Carolina may continue to serve for limited periods as non-voting members emeriti. The president of the UNC Association of Student Governments, or that student's designee, is also a non-voting member.

Each of the 16 constituent institutions is headed by a chancellor, who is chosen by the Board of Governors on the president's nomination and is responsible to the president. Each institution has a board of trustees, consisting of eight members elected by the Board of Governors, four appointed by the governor, and the president of the student body, who serves ex-officio. (The NC School of the Arts has two additional ex-officio members.) Each board of trustees holds extensive powers over academic and other operations of its institution on delegation from the Board of Governors.

THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

UNC Charlotte aspires to be North Carolina's most energetic and responsive public University, offering excellent educational opportunities at the undergraduate and graduate levels in the liberal arts and sciences and selected professions. The University provides intellectual leadership for addressing the educational, cultural, economic, social and research needs of its local, state and national constituencies, in an environment distinguished by its nationally renowned faculty. Through their engagement in programs of instruction, scholarship and public service, the University responds to the demands of an increasingly complex world and the dynamics of a burgeoning metropolitan region.

The University offers programs leading to baccalaureate, master's and doctoral degrees as well as programs leading to professional licensure in architecture, business, education, engineering, health professions, the humanities, information technology, the physical and biological sciences, and the social and behavioral sciences. In order to meet the growing need for higher education in the Charlotte region and in the State, the University continues to expand its degree programs and its continuing education non-degree offerings.

The University is committed to excellence through informed and effective teaching in all its academic programs and emphasizes undergraduate instruction as the foundation of life-long learning and advanced formal education. It selects students who have demonstrated a willingness to learn, a capacity to benefit from a broad array of intellectual resources, and the potential to participate in the opportunities offered by the changing global society. University programs are open to all qualified students without regard to race, color, national origin, gender, age, religious belief, sexual orientation, or disability. Participation by students from other states and nations is welcomed.

The academic programs of the University are offered on-campus and off-campus, and through e-learning and continuing education. These programs are augmented by student support and development activities and through a wide variety of collaborative relationships that expand the classroom into the region.

The size and distinction of its research programs reflects its nationally competitive faculty. Recruited from across the world, they engage in both basic and applied research. Their scholarly inquiry informs both graduate and undergraduate instruction, and takes advantage, when appropriate, of the University's location in a diverse and expanding metropolitan region.

Leadership in public service is provided through campus-based programs and consulting and cooperative arrangements with local, regional, national, and international organizations. The University strives to maintain a campus environment that encourages the active involvement of students in their personal and intellectual development, including opportunities to learn leadership skills. The University serves its neighboring community through a variety of public events and outreach activities involving members of the faculty, staff, and student body. The citizens of the region are regularly invited to share in the broad range of opportunities generated by the campus, including athletics, the performing and visual arts, continuing education opportunities, and many other speakers, workshops, and outreach activities.

UNC Charlotte was founded in 1946 to serve returning veterans of World War II. Over the course of its history, the student body has expanded to include many diverse populations. Of late, the age of the undergraduate student body is increasingly traditional. This dynamic has led the University to develop a large residential campus. Within this growing residential environment, the University retains its historic commitment to serving a diverse student population, including ethnic minorities, part-time students, persons with disabilities, and non-traditional students in a welcoming, positive, and healthful learning environment.

As one of the fastest growing universities in the State, UNC Charlotte has established a tradition of careful planning and intelligent stewardship to assure the most efficient use of its facilities and resources. The UNC Board of Governors has classified the University as a Doctoral/Research-Intensive institution. The University will continue to expand as resources from both public and private sources grow.

The policies and practices of the University are designed to graduate students who:

- Have a broad knowledge base as well as a more specialized knowledge base in their chosen area;
- Possess skills and capacities that can be applied to a variety of situations and professions in an ever-changing world;
- Understand the complexities and interrelationships between humans and their environment;
- Possess a realistic understanding of their own potentials, limitations and mental/physical development; and
- Possess a general understanding of and appreciation for:
  - Science and technology
  - Literature and the arts

- The individual, society, and culture
- The interrelationships among these areas

Goals of UNC Charlotte General Education

In order to meet the goals of UNC Charlotte's general education, students engage in programs designed to develop understandings, skills and capacities in the following six interrelated major areas:

I. **Communication**
II. **Problem Solving**
III. **Understanding Values**
IV. **Understanding Science and Technology**
V. **Understanding the Arts, Literature and Ideas**
VI. **Understanding the Individual, Society and Culture**

INSTITUTIONAL MISSION STATEMENT

UNC Charlotte is the only Doctoral/Research University - Intensive in the Charlotte region, fully engaged in the discovery, dissemination, synthesis, and application of knowledge. It provides for the educational, economic, social, and cultural advancement of the people of North Carolina through on- and off-campus programs, continuing personal and professional education opportunities, research, and collaborative relationships with private, public, and nonprofit institutions. UNC Charlotte has a special responsibility to build the intellectual capital of this area. As such it serves the research and doctoral education needs of the greater Charlotte metropolitan region.

The primary commitment of UNC Charlotte is to extend educational opportunities and to ensure success for qualified students of diverse backgrounds through informed and effective teaching in the liberal arts and sciences and in selected professional programs offered through Colleges of Architecture, Arts and Sciences, Business Administration, Education, Engineering, Information Technology, and Nursing and Health Professions, and through programs and services designed to support student's intellectual and personal development. The University offers an extensive array of baccalaureate and master's programs and a number of doctoral programs.

With a broad institutional commitment to liberal education as the foundation for constructive citizenship, professional practice, and lifelong learning, UNC Charlotte is prepared to focus interdisciplinary resources to address seven broad areas of concern to the Charlotte region: 1) Liberal Education; 2) Business and Finance; 3) Urban and Regional Development; 4) Children, Families, and Schools; 5) Health Care and Health Policy; 6) International Understanding and Involvement; and 7) Applied Science and Technologies.

EQUAL OPPORTUNITY AND AFFIRMATIVE ACTION

The University of North Carolina at Charlotte is dedicated to equal opportunity through affirmative action within the University community. The University's Affirmative Action Program is designed to provide equal consideration of all applicants for faculty and staff positions, for all faculty members in the tenure and promotion process, for administrators and other staff members seeking promotions and upgrades, as well as for students seeking admission, financial aid, and equality in academic and athletic programs.

In keeping with this policy, faculty and staff are recruited, hired, and promoted without regard to race, color, religion, sex, national origin, age, sexual orientation, or any non-relevant disability. The University actively recruits students from protected categories and provides opportunities for the growth and development of these students.

The University's Affirmative Action Program was established in 1973 and includes the monitoring and reporting of compliance with applicable laws and regulations including Titles VI and VII of the Civil Rights Act of 1964, as amended; Executive Order 11246, as amended by Executive Order 11375; Revised Order No. 4; the Equal Pay Act of 1963, as amended; the Rehabilitation Act of 1973 as amended; the Vietnam Era Veteran's Rehabilitation Act of 1974; Titles VII and VIII of the Public Health Service Action; Title IX of the Education Amendments of 1972; The Americans with Disabilities Act; and all applicable laws and ordinances of the State of North Carolina. The University has a published Affirmative Action Plan, copies of which have been distributed to all departments and offices. Copies have also been placed on reserve in the Library.

The Director of Human Resources serves as the Affirmative Action Officer and is responsible for ensuring The University's commitments are met. Contact the Director of Human Resources, 225 King Building, 704-687-4269.

Discriminatory Personal Conduct. The University seeks to promote a fair, humane, and respectful environment for its faculty, staff, and students. To that end, University policy explicitly prohibits sexual harassment, racial harassment, and all other personal conduct which inappropriately asserts that sex, race, ethnicity, sexual orientation, disability, or ancestry are relevant to consideration of individual worth or individual performance. The same policies provide procedures for the informal or formal resolution of instances where such behavior is suspected or alleged. The policies have received wide distribution and are available for inspection in all administrative offices on campus.

ACADEMIC STRUCTURE

UNC Charlotte is organized into four administrative divisions: Academic Affairs, Business Affairs, Development and University Relations, and Student Affairs. The Division of Academic Affairs includes Enrollment Management; Graduate Programs; Library; Information Services; Extended Academic Programs; International Programs; Research; and seven colleges, the Colleges of Architecture, Arts and Sciences, Business Administration, Education, Engineering, Information Technology, and Nursing and Health Professions. The colleges offer more than 80 undergraduate and 52 master's degree options and sixth-year Certificates of Advanced Study, and six doctoral programs. Many of the departments throughout the University are involved in teacher education. The College of Education, advised by the University Teacher Education Committee, is responsible for these programs.

ACCREDITATION

UNC Charlotte is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, Georgia 30033-4097: telephone number 404-679-4501) to award baccalaureate, master's, intermediate, and doctoral degrees.

The Bachelor of Architecture program is accredited by the National Architectural Accrediting Board (NAAB). The Department of Chemistry is on the approval list of the American Chemical Society. The Master of Public Administration program is accredited by the National Association of Schools of Public Affairs and Administration (NASPAA). The Bachelor of Social Work program is accredited by the Council on Social Work Education (CSWE). The programs in business and accounting are accredited by AACSB - The International Association for Management Education. The University's professional education programs for PK-12 teachers, counselors, and administrators are approved by the North Carolina Department of Public Instruction (NCDPI) and accredited by the National Council for Accreditation of Teacher Education (NCATE). The School Counseling and Agency (Community) Counseling programs in Counselor Education are accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). The civil, electrical, and mechanical engineering programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET), 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 - telephone: (410) 347-7700 and those in the civil, electrical, and mechanical engineering technology programs by the Technology Accreditation Commission of ABET. The Nursing programs are accredited by the National League for Nursing (NLN), and have preliminary approval by the Commission on Collegiate Nursing Education (CCNE); and the Nursing Anesthesia program is accredited by the Council on Accreditation of Nursing Anesthesia Educational Programs (CANAEP).

The University is a member of the Council of Graduate Schools, the Conference of Southern Graduate Schools, and The North Carolina Association of Colleges and Universities.

STUDENT LIFE

ACTIVITIES

Students at UNC Charlotte are encouraged to participate in extracurricular activities. The Student Government Association, the University Program Board, and campus publications are a few of the available activities that can play a significant role in each student's development and total education. Participation in activities, ranging in type from service and religious to athletic and social, and from creative arts and crafts to wilderness experiences, increases a student's opportunities to acquire leadership skills, to experience the responsibilities involved in functioning within a self-governmental process, and to develop personal talents and interests. A listing of all student clubs and organizations may be found at http://www.uncc.edu/cone/clubs.

Students are entitled to participate in several student groups and organizations as long as they are academically eligible to continue their enrollment. However, participation in organizations associated with the Student Government Association, University Program Board, and Campus Publications requires students to be in good standing with the University, both academically and in accordance with The Code of Student Responsibility.

Athletics. The Charlotte 49ers Department of Athletics provides competition in 16 intercollegiate varsity sports for men and women. Each sport competes under the governing powers of the National Collegiate Athletic Association (NCAA) at the Division I level, which is the highest competitive level for collegiate varsity sports. Scholarships are available for all varsity sports, male and female.

Male student-athletes compete in eight sports: baseball, basketball, cross-country, golf, soccer, tennis, indoor track and field, and outdoor track and field. Female student-athletes also compete in eight sports: basketball, cross-country, soccer, softball, tennis, volleyball, indoor track and field, and outdoor track and field.

The Charlotte 49ers are members of Conference USA, which sponsors championships in each of the 49ers' 16 sports. Conference USA is made up of 12 schools from 12 states: The University of Alabama at Birmingham, The University of Cincinnati, DePaul University, The University of Houston, The University of Louisville, Marquette University, The University of Memphis, Saint Louis University, The University of South Florida, The University of Southern Mississippi, Tulane University, and UNC Charlotte. Conference USA tournament champions in baseball, basketball, soccer, softball, and volleyball receive automatic bids to the NCAA post-season tournaments.

Each of the 49ers teams, except golf and cross-country, compete on-campus in home competition. The basketball and volleyball teams compete in Halton Arena; the soccer and track and field programs compete at the Irwin Belk Center while the baseball, softball and tennis teams compete at the D.L. Phillips Athletic Complex.

IMPORTANT: UNC Charlotte students have free admission to all regular-season home athletic contests with proper University identification.

DEAN OF STUDENTS OFFICE

The Dean of Students Office is a department within the Division of Student Affairs and serves as a key link between students and other areas of campus life. Various programs are sponsored by the Dean of Students Office to promote opportunities for learning and growth during a student's college experience. The staff is responsible for advising and promoting the following programs: student government, fraternities and sororities, minority student support services, new student orientation, intramural and recreational services, commuter life, women's programs, student discipline and volunteer services.

The Dean of Students Office welcomes all students. The staff of student development professionals provides support for any student who has a grievance or concern about the University. The office also coordinates and assists with the settlement of academic and social misconduct charges against individuals and student organizations.

Each of the above services provides excellent opportunities for students to incorporate classroom knowledge into practical situations. Students often find themselves learning new skills and abilities that will help them become more productive and more responsible citizens. The Dean of Students Office is located in 217 King Building. For information, call 704-687-2375.

Greek Life at UNC Charlotte consists of 21 fraternities and sororities and involves approximately 7% of our campus community. Achieving excellence is the primary focus of a college education, and since 1776, Greek-letter organizations have been an integral part of that mission at colleges and universities across the country. Founded upon the principles of scholarship, leadership, community service and the formation of lifelong friendships, Greeks today uphold these fundamental values in their pursuit of collegiate excellence, enabling all members to achieve their personal best. The experience the student gains from organizing and motivating people, planning and implementing projects and learning to give back what one has received can be an invaluable part of a college education. Membership recruitment for a fraternity or sorority primarily begins with each new semester. However, some organizations hold recruitment meetings throughout the year.

The Student Advising for Freshman Excellence (SAFE) program is one of the University's most successful retention efforts. SAFE connects new students with an upper-class mentor who acts as a behavior and academic role model during the freshman year. Together with academic and student development programming, SAFE addresses student's needs in a holistic manner. Research shows that SAFE's efforts go a long way toward easing the transition from high school to college. SAFE is geared to minority students but is open to any student interested in success at UNC Charlotte.

Women's Programs offered in the Dean of Students Office include the Women of the Year Awards, Women's Leadership Conference and the Take Back the Night Rally to protest violence against women and children. Women's Programs also works closely with the Women's Studies Department to provide services and awareness of women's issues.

Commuter Student Life in the Dean of Students Office supports commuter students by providing informational resources about off-campus living and by working with campus departments to encourage University-wide support systems for commuter students.

Volunteer Services helps students find community service opportunities through a clearinghouse where over 300 volunteer positions at local service agencies are listed. A wide diversity of positions is available, and the Volunteer Services staff can help students find an opportunity that matches their interests and skills. Volunteer Services also has a number of issue-based teams that focus on topics like hunger, education, homelessness, literacy, and mentoring. These committees plan and implement group service projects in which all UNC Charlotte students, faculty, and staff may participate. Volunteer Services also sponsors special events such as Into the Streets, Alternative Spring Break, and 49er Plunge.

New Student Orientation Programs help freshmen and transfer students learn more about UNC Charlotte. SOAR and WOW! are two orientation and transition programs offered to new students.

SOAR (Student Orientation, Advising and Registration) occurs during the summer and immediately prior to the fall and spring semesters. This program provides the opportunity for new freshmen and transfer students to begin their transition to UNC Charlotte. Orientation workshops, testing, academic advising, and first semester course registration occur during SOAR.

WOW (Week Of Welcome) is a weeklong event welcoming both new and returning students to campus. This program is a University-wide effort to welcome new students to campus and acclimate them to the many programs and services offered by the University. All students are invited to participate in WOW! activities which include video dances, movies, prizes, cookouts, and other fun events.

Intramural and Recreational Services offers a comprehensive program to provide enjoyable recreational opportunities for UNC Charlotte. The program includes team, dual, and individual intramural sports for men and women, and ample opportunities for unstructured "free play" activities. In addition, there are 18 active sports clubs, a diverse schedule of fitness classes, and a state of the art fitness center available to the entire University community.

The Belk Gymnasium features basketball, volleyball and badminton courts, an indoor swimming pool, racquetball courts, a weight room, and lockers for students, faculty, and staff. It also houses classrooms and an auditorium for audiovisual presentations.

The James H. Barnhardt Student Activity Center is a multi-purpose facility designed to meet the diverse social, cultural, and recreational needs of students at UNC Charlotte.

The 9,100 seat arena is a first-class setting for athletic events, as well as conferences, lectures, and entertainment activities. Recreational opportunities are available daily in the two weight rooms, aerobics studio, indoor track, four indoor basketball/volleyball courts, and the indoor climbing wall. While physical fitness opportunities can be enjoyed in these areas, two other areas of the building emphasize relaxation and socializing. The first floor is home to a spacious food court. Overlooking the food court on the second floor is a 7,000 square foot game room. Billiards, table tennis, pinball, computer games, and card tables are available for an array of gaming activities. A hospitality room that can be sub-divided into five separate meeting salons located on the top floor is available to University organizations.

Venture offers experiential learning, non-credit courses and workshops in outdoor settings. Activities include weekend trips in a variety of outdoor sports from backpacking to kayaking, and programs at our on-campus team building course, high ropes challenge course, and indoor climbing wall. Venture programs are modeled on Outward Bound and are designed to facilitate individual growth through physical challenge, group interaction, and personal reflection. VOLTAGE (Venture Outdoor Leadership Training and Group Experience) trains student leaders to instruct Venture Programs. Venture houses a resource library to help individuals plan their own trips. Outdoor camping gear can be rented.

Venture also offers courses for academic credit through the Department of Health Promotion and Kinesiology. Each fall, a four-credit course, Wilderness Experience, offers an adapted Outward Bound experience presenting a series of increasing challenges. A variety of one-credit outdoor activity courses also is offered. For additional details, see the descriptions for (HPKD) courses or contact the Venture Program (704-687-2486) in the Cone University Center.

The Student Body Government provides students an early experience in governmental affairs. Students often find their work in student government a useful background for later public service. The University encourages student participation in its affairs and has student representatives on many of the faculty and administrative committees. The leaders of student government are committed to representing the student body and to developing students' awareness of the many facets of life at their University. All regularly enrolled students, whether on a part- or full-time basis, are eligible to participate in student government. Student Body Government comprises:

The Executive Branch, made up of the president, the vice president, the cabinet, and committees appointed by the president.

The Student Legislature, composed of the Chair, the four class presidents, the residence hall representatives, commuter student representatives, representatives from each college chosen by the students majoring in the college, and non-traditional student representatives. The Chair of the Student Legislature conducts all meetings and serves as liaison between the Legislature and the president's office. The student body treasurer reports to the Student Legislature.

The Judicial Branch is composed of panel members of the Student Court including the Chief Justice of Student Court, the University Advocate Office, and the Student Defense Office. Members of Student Court are responsible for hearing cases of alleged violations of the UNC Charlotte Code of Student Responsibility and determining appropriate sanctioning if the accused is found responsible for violation of the Code.

The UNC Charlotte Center for Leadership Development provides individuals with opportunities to develop leadership skills and abilities and provides the University and student organizations more effective leadership. The goal is to provide a comprehensive and diverse program of leadership development activities for current student leaders and potential leaders.

The program consists of both group and self-paced leadership components, academic courses, as well as retreats and conferences. Individual and group consultation is also available.

- **LeaderShape Institute**--Focuses on leading with integrity for established leaders
- **Leadership Resource Area**--Information on a variety of leadership topics for individuals and organizations
- **Leadership Fellows**--For upper-classmen, group leadership experience
- **Emerging Leaders**--For freshmen, group leadership experience
- **Leadership Theory and the Dynamics of Group Process**--A 3-hour course in communication studies
- **Individual and Group Consultation**--Assistance with applications, interviewing, leadership issues and programmatic needs
- **Conferences**--Co-sponsorship of leadership conferences for Greeks, women, and African-American students
- **Peer Leadership Course**--A 3-hour course in communication studies for students currently in leadership positions
- **PILOT**--An individualized program students complete in order to receive Leadership Certification
- **LEAD Team**--Students are trained as presenters and are available to make presentations on a wide variety of leadership topics
- **Leadership Website**--Provides information and leadership education resources

Contact the Office of Student Activities for more information, 704-687-2521.

Media Board. As the governing body for Student Media, the board may set policies and procedures and may determine operational restrictions. At-large members and media representatives are elected each spring. Interested students should see the media advisor in early spring. *For information: Phone 704-687-2663.*

The University Times. Serving the University community, *The Times* is distributed free to both on- and off-campus locations. Published on Tuesdays and Thursdays, the newspaper covers news, events, sports, and features of importance to the UNC Charlotte and the surrounding community. It is not necessary to be a communication major nor to have prior experience, just the motivation to be involved. *For more information: Phone 704-687-2324.*

Media Marketing is the advertising branch of Student Media, responsible for contracting and sales of advertising for all student publications, generating campus promotions, special inserts, and sections of *The Times*, as well as soliciting contributions for Student Media fund-raising efforts, circulation, and subscriptions. There is no need to be a business or marketing major; a desire to make the program an exciting and successful one is all that is necessary. *For information: Phone 704-687-2663.*

Sanskrit Literary-Arts Publication, UNC Charlotte's literary-arts magazine, publishes both student and non-student work in four categories: art, photography, short fiction, and poetry. *Sanskrit* is an excellent vehicle for exposure of student talent and creative efforts. Submissions are encouraged and are due in the fall. Guidelines for submitting material and deadline information are available through the Student Media Offices in Cone Center. *For information: Phone 704-687-2326.*

NinerOnline.com is UNC Charlotte's new website created by and for students. NinerOnline.com includes an online edition of *The University Times,* as well as daily updates of news important to the University community. Students can also create a personal email account and can find valuable student resources and links. To join the staff or get more information, *Phone 704-687-2663.*

The Campus Activities Board is a student organization that plans and promotes social, cultural, educational, and recreational programs for students and the University community. These programs include live music, coffeehouse entertainment, homecoming, lectures, performing arts, films, multicultural programs, and other special activities.

The Activities Board consists of a president, vice president, treasurer, and eight student committee directors. The president and vice president are elected in the annual campus-wide spring elections. Directors are selected by an application and interview process during spring semester.

Black Student Union (BSU) is an organization designed to raise cultural awareness and address issues facing the African-American student community. Some of its sponsored activities include the annual Halloween Carnival, the Fall and Spring Step Shows, the Housekeeper's Appreciation Day, and an annual Awards Banquet. This organization also produces a student-run publication, "The Black Perspective," for the articulation of the voices of African-American students. Students interested in these types of events should contact the BSU office at 704-687-2191. Membership is opened to all students.

Martin Luther King Celebration Committee is a committee of students, faculty, and staff working together to produce a campus-wide celebration. For information, contact the Multicultural Resource Center at 704-687-3865.

STUDENT ORGANIZATIONS

The University has many clubs and organizations that help meet the academic, social, political, and religious needs of UNC Charlotte students. Contact the Student Government Office at 704-687-4606 for a listing of the clubs and organizations registered by the Student Government Association. A listing of all student clubs and organizations may be found at http://www.uncc.edu/cone/clubs.

HONORARIES

The following is a list of national/international honor societies that have chapters at UNC Charlotte to recognize achievement in the disciplines indicated. Further information on each organization is available from the Department or college offering the discipline.

Alpha Delta Mu, national social work honor society
Alpha Kappa Delta, national sociology honor society
Alpha Mu Alpha, national marketing honor society
Alpha Phi Sigma, national honor society for the criminal justice sciences
Alpha Psi Omega, national dance and theater honor society
Alpha Sigma Lambda, national honor society for non-traditional students
Beta Alpha Psi, national accounting honor society
Beta Beta Beta, national biology honor society
Beta Gamma Sigma, national honor society in business and management
Chi Epsilon, national civil engineering honor society
Chi Sigma Iota, international honor society for counselors
Eta Kappa Nu, national electrical engineering honor society
Gamma Theta Upsilon, international geography honor society
Golden Key, national honor society (all disciplines)
Contact: ROTC
Kappa Delta Pi, international honor society in education
National Society of Collegiate Scholars, national honor society of philosophy
Omicron Delta Kappa, national leadership honorary
Contact: Vice Chancellor for Student Affairs
Order of Omega, national Greek honorary
Phi Alpha Theta, international history honor society
Phi Beta Delta, honor society for international scholars
Contact: Office of International Programs
Phi Eta Sigma, national honor society for freshmen
Contact: Dean of Students Office
Phi Kappa Phi, national honor society (all disciplines)
Contact: Office of Academic Affairs
Phi Sigma Tau, international philosophy honor society
Pi Alpha Alpha, national public affairs/public administration honor society (for graduate students)
Pi Mu Epsilon, national mathematics honor society
PinnAcle, honor society of adult and evening services
Pi Sigma Alpha, national political science honor society
Psi Chi, national psychology honor society
Sigma Delta Pi, national foreign languages honor society
Sigma Gamma Epsilon, national earth sciences honor society
Sigma Iota Epsilon, national management honor society
Sigma Pi Sigma, national physics honor society

Sigma Tau Delta, national English honor society
Sigma Theta Tau, international nursing honor society
Tau Alpha Pi, national engineering technology honor society
Tau Beta Pi, national engineering honor society
Zeta Delta, national management honor society

OFFICE OF RELIGIOUS AFFAIRS

As a tax-supported public institution, UNC Charlotte neither promotes nor recommends any religious orientation. However, the University recognizes that spiritual discernment and moral appreciation are essential to the development of the whole personality and has established an Office of Religious Affairs.

The functions of this office include providing information to the campus community and general public about religious activities and programming, as well as coordinating the activities of religious organizations in the University. These organizations provide a variety of services including prayer, pastoral and academic counseling, retreats, Bible study, marriage preparation, discussion groups, ecumenical activities, and social services. Faculty members, staff, and students may obtain additional information by contacting the Office of Religious Affairs.

The religious associations listed below provide the services of their representatives to serve the spiritual needs of students and other members of the campus community.

Baptist - Dan McClintock, Campus Minister- 704-687-3563
Catholic - Mary Wright, Advisor- 704-687-4069
Lutheran - Steve Cheyney, Campus Minister- 704-687-4068
Methodist - Steve Cheyney, Campus Minister- 704-687-4068
Presbyterian - Steve Cheyney, Campus Minister- 704-687-4068

These persons and other representatives may be reached through the Office of Religious Affairs, 200 King Building, 704-687-2344.

Student Conduct

Upon admittance to the University of North Carolina at Charlotte, all students are encouraged to be familiar with The Code of Student Responsibility, Code of Academic Integrity, and University Policy Statements that govern student conduct. Any student who would like to obtain copies of these documents may come by the Dean of Students Office located in 217 King Building. Office hours are Monday through Friday, 8:00 AM to 5:00 PM. The Codes of Academic Integrity, Student Responsibility and University Policy Statements are also available online at http://www.uncc.edu/policystate/ps-105.html.

ADMISSION TO THE UNIVERSITY

The University considers applications for admission without regard to race, color, national origin, religion, sex, sexual orientation, age, or disability. It reserves the right to withhold the admission of applicants who fail to meet any of the requirements for admission and to restrict enrollments as required by budgetary or other constraints.

Admissions Process. Applications for admission are reviewed when all required credentials are received. The review focuses on the academic history of the applicant and considers all relevant factors. The intent of the University is to offer admission to applicants whose credentials indicate a strong likelihood for success in their selected curricula. It is not always possible to accommodate all the applicants who meet the minimum criteria, and some programs select the best qualified from those meeting the minimum requirements. The Admissions Advisory Committee may make exceptions to the minimum criteria for applicants who are judged to have potential or talent not revealed by test scores and academic performance. Notification of the admissions decision is mailed as soon as the decision is made. For programs that have a special admissions process, such as Architecture and Nursing, notification will be later than for other programs.

Students on campus who indicate their interest in housing on the application for admission will be mailed a housing application after receiving an acceptance letter from UNC Charlotte. To reserve a housing space, the student should complete the application card included in the contract booklet and return it with the required housing deposit. Early application guarantees early confirmation of housing and enhances the possibility of assignment, if requested, to one of the special lifestyles housing units that are available on a limited basis.

Application forms and information about undergraduate programs are available from:

Office of Undergraduate Admissions
University of North Carolina at Charlotte
9201 University City Boulevard
Charlotte, North Carolina 28223-0001
Telephone: 704-687-2213
Fax: 704-687-6483
E-mail: unccadm@email.uncc.edu
Web: http://www.uncc.edu/admissions

International students should contact the Office of International Admissions by telephone at 704-687-2694, by fax at 704-687-6340, or by email at INTNLADM@email.uncc.edu. Application forms and information are also available on the Internet at: http://www.uncc.edu/intradmn/admiss.htm.

WHEN TO APPLY

Applicants are advised to file their applications for admission well in advance of the schedule below, which is based on the amount of time generally required to process an application and inform the applicant of the admission decision. **Early application is especially advantageous during periods of rapid enrollment growth and for programs with limits on the number of new students that can be accepted.**

Term of Entry	Application Should Be Filed By	Application Should Be Completed By
First Summer Term	May 1	May 15
Second Summer Term	June 1	June 15
Fall Semester	July 1	July 15
Spring Semester	November 15	December 1

*Deadlines for international students are earlier. Contact the Office of International Admissions for further details.

The University may alter the dates for acceptance of applications without further notice in accordance with available resources and the enrollment limitation established by the North Carolina General Assembly.

THE APPLICATION

The applicant is responsible for supplying all required credentials. Nondisclosure of an applicant's complete academic history will result in rejection of the application and immediate dismissal from the University.

For Freshman Admission, the application includes:

1. A completed *Application for Undergraduate Admission* form.
2. Application fee of $35 (nonrefundable and not deductible).
3. Official high school transcript showing rank in class, GPA computed on a 4.0 scale, senior courses in progress, and SAT or ACT scores. (A high school equivalency certificate or G.E.D. may be submitted in lieu of a high school diploma.)
4. Official SAT and/or American College Testing Program (ACT) scores.
5. Additional credentials, specified below, for international applications.

For Transfer Admission, the application includes:

1. A completed *Application for Undergraduate Admission* form.
2. Application fee of $35 (nonrefundable and not deductible).
3. Official high school transcript. (This may be waived for applicants who present the A.A., A.S., or A.F.A. degree.)
4. Two official transcripts from every college attended, including summer sessions.
5. Additional credentials, specified below, for international applications.

For Admission of International Applicants, the application also includes:

1. Official scores on the Test of English as a Foreign Language (TOEFL) or the Michigan English Language Assessment Battery (MELAB), if the applicant is from a non-English speaking country. Required is either a minimum score of 180 on the new computer based TOEFL, or a minimum score of 75% on the MELAB.
2. A Statement of Financial Responsibility showing the applicant's financial resources while in the United States.

ADMISSION REQUIREMENTS

Freshman Admission Requirements. Candidates for admission to freshman standing, including transfer applicants who present fewer than 24 hours of transferred credit, must:

1. Submit a completed application for admission.
2. Have graduated from an approved or accredited high school or have earned a high school equivalency certificate or G.E.D.
3. Present the following **High School Course Units**: 4 units in *English*, emphasizing grammar, composition and literature; 3 units in mathematics, including algebra I, algebra II and geometry, or a higher level mathematics course for which Algebra II is a prerequisite; 2 units in *social studies*, including one unit in U.S. history; 3 units in *science*, including at least one unit in a life or biological science (for example, biology), at least one unit in a physical science (for example, physical science, chemistry, physics), and at least one laboratory course; and 2 units in one *foreign language*. It is *recommended* that the candidate for admission also complete one unit of world history and one-half unit of health education and that one unit of foreign language and one unit of mathematics be completed in the twelfth grade. **Enrollment in the recommended units, the difficulty of courses selected, and the academic courses taken in the twelfth grade will be considered in the admissions decision.** (Course units as defined in these requirements may include high school level courses taken and passed after graduating from high school as well as those taken while enrolled as a high school student.)
4. Present a satisfactory combination of high school grades and SAT or ACT scores as indicated by the predicted college grade index (PGI) calculated by UNC Charlotte. [The PGI is a combination of test scores and the high school grade average in selected academic courses (English, mathematics, sciences, foreign languages, and history) in which an adjustment is made to recognize participation in Honors, AP, and IB courses].
5. Request official Advanced Placement (AP) test results to be sent directly to the Office of Undergraduate Admissions (Code 5105) if advanced placement course credit is to be considered for addition to the UNC Charlotte transcript.
6. Satisfy any additional requirements for acceptance into their chosen major (if any).
7. Present evidence of good physical and mental health and verification of specific immunizations required by North Carolina state law described elsewhere in this Catalog. (A Report of Medical History) form provided with the notification of admission may be used for this purpose.)

Early (Freshman) Admission Requirements. Candidates for early admission to freshman standing must:

1. Have completed the eleventh grade (achieved bona fide senior status as defined by their school systems).
2. Demonstrate outstanding ability in their overall academic performance.
3. Be recommended for early admission by their high school principal.
4. Satisfy the other requirements for admission to freshman standing.

Transfer Admission Requirements. Candidates for admission as transfer students must:

1. Submit a completed application for admission.
2. Satisfy the requirements for freshman admission if they do not present at least 24 hours of transferred credit accepted by UNC Charlotte.
3. **Present the High School Course Units** (required of all students under the age of 24) specified in the Freshman Admission Requirements. Transfer applicants who did not complete the required course units in high school may earn an Associate in Arts, Associate in Science, or Associate in Fine Arts degree OR complete six semester hours (or 9 quarter hours) that are transferable to UNC Charlotte in each of the following subject areas: Mathematics, English, social science, and natural science.
4. Present an academic average of at least *C* (a grade point average of at least 2.0 on a 4.0 scale) on all post-secondary courses attempted.
5. Be in good standing at the last college or university attended.
6. Satisfy any additional requirements for acceptance into their chosen major (if any).
7. Present evidence of good physical and mental health and verification of specific immunizations required by North Carolina state law described elsewhere in this *Catalog*. (A *Report of Medical History* form provided with the notification of admission may be used for this purpose.)

ADDITIONAL REQUIREMENTS FOR ACCEPTANCE INTO SPECIFIED PROGRAMS

Accounting. *Freshmen* must present a PGI of at least 2.2. *Transfers* must present a GPA of at least 2.75 in the following 10 courses or the portion they have completed: ENGL 1101 and 1102; MATH 1100, 1120; STAT 1220; INFO 2130; ECON 1201 and 1202; and ACCT 2121 and 2122. Transfers who have not completed all 10 courses also must present an overall GPA of at least 2.5. A GPA of at least 2.75 in the 10 courses is required to enroll in junior level accounting courses beginning with ACCT 3138.

Architecture. Applications for the fall semester are accepted through January 31 each year. *Freshmen and transfers* must present algebra, trigonometry, plane and solid geometry, or the equivalent in integrated courses from high school or college; a personal interview, and letter of intent are required.

Art. *Freshmen and transfers* seeking admission to the B.F.A. degree program must present an art portfolio and have a personal interview. Students unable to present a portfolio at the time of admission may be admitted to the B.A. degree program in Art. Instructions for preparation of the portfolio and scheduling the interview are available from the Office of Undergraduate Admissions. Admitted students seeking a change of major into the B.F.A. program should contact the Art Department for information.

Business Administration (B.S.B.A. degree programs). *Freshmen* must present a PGI of at least 2.1 to be admitted to the College. *Transfers* may be admitted either to Prebusiness or to an upper-division major as follows. To be accepted into an upper-division major, transfers must have: (1) junior standing; (2) completed ACCT 2121 and 2122, ECON 1201 and 1202, MATH 1120, STAT 1220, INFO 2130 with at least a *C* in each course; and (3) a GPA of at least 2.0 on all previous college work. Transfer students enrolling in junior level business classes may be required to take a microcomputer proficiency test or to complete INFO 2130 with a *C* or better during their first semester of enrollment in The Belk College. Transfers who do not qualify for acceptance into an upper-division major may be admitted to the lower-division Prebusiness program. Those who transfer fewer than 24 hours must meet the criteria for admission of freshmen and present a GPA of at least 2.0. Those who transfer at least 24 hours must have a GPA of at least 2.0 in all college work and have a *C* or better in each of the following courses attempted: MATH 1120; STAT 1220; ACCT 2121, 2122; ECON 1201, 1202; and INFO 2130.

Computer Science. *Freshmen* must present a PGI of at least 2.5. *Transfers* must present an overall GPA of at least 2.5 with no grade less than *C* in computer science courses.

Economics. *Transfers* from other institutions must present a 2.0 GPA overall and a *C* or better in each of the following eight courses: ENGL 1101 and 1102; MATH 1100 and 1120; STAT 1220; INFO 2130; and ECON 1201 and 1202.

Education. *Freshmen* interested in teacher education may be classified as Pre-Education students and should declare their interest to receive appropriate advising services. Admission to a Teacher Education program typically occurs at the end of the sophomore year and requires: (1) a GPA of at least 2.5 in courses taken and/or accepted on transfer by UNC Charlotte; (2) a grade of *C* or better in both EDUC 2100 and SPED 2100; and (3) test scores at or above North Carolina Department of Public Instruction (NCDPI) cut-score levels on praxis I: Pre-Professional Skills Tests in Reading, Mathematics, and Writing. *Transfers* must meet the same requirements.

Engineering. *Freshmen* must present acceptable grades in algebra, trigonometry, plane geometry, or the equivalent in integrated courses. Those presenting SAT MATH scores ≥ 520 and a PGI ≥ 2.5 may be admitted directly to the lower-division of a department. (The lower-division encompasses the first two years of *Catalog*-specified courses in a department). Students not admitted to the lower-division in a department presenting SAT MATH scores ≥ 480 will be considered for admission to the Freshman Engineering Program. *Transfers* must present a GPA of at least 2.5 and meet the same mathematics requirements as engineering freshmen using either high school or college mathematics courses. All transfers will be admitted only to the lower-division of a department, and evaluation of transfer credits to a program by the Department Chair will follow the guidelines of the North Carolina Engineering Transfer Board. Transfers from an ABET accredited engineering program who do not have a 2.5 GPA may be admitted upon the recommendation of the Chair of the major department.

Engineering Technology. Only *Transfers* are accepted into this program. They must: (1) have an Associate in Applied Science degree, or its equivalent, in a field appropriate to the option they plan to enter; (2) have an overall GPA of at least 2.2 on all courses taken toward the two-year degree. (Exceptions to this requirement will be considered on the basis of individual merit.); and (3) complete satisfactorily the prerequisite background courses

for the option they plan to enter. Acceptance of the A.A.S. degree indicates the acceptance of up to 64 hours toward the Bachelor of Science in Engineering Technology degree only. These hours are not valid toward any other degree program at the University.

Music. An audition is required and will be scheduled by the Music Department after it is determined that the applicant is qualified for admission to the University.

Nursing. Applicants are admitted to the Nursing major at the upper-division or junior year only. *Freshmen* who meet University requirements may be admitted to Pre-Nursing. Acceptance into Pre-Nursing does not automatically qualify an applicant for acceptance into the upper-division nursing major. *Transfers* who have an overall GPA of at least 2.5, but have not completed all prerequisites, may be admitted into Pre-Nursing; however, this does not automatically qualify the applicant for acceptance into the upper division Nursing major. Admission to the upper division Nursing major is competitive and not all applicants can be accommodated. Only the best qualified applicants are accepted for the limited spaces available. Applications for the upper-division B.S.N. major must be received in the Office of Undergraduate Admissions, including all supporting documentation and transcripts, by January 15 in order to be considered for admission into the fall semester. Applicants are admitted into the upper-division major in the fall semester only.

Transfer students who hold a current license as a registered nurse (RN) in North Carolina are eligible to apply for the RN/BSN completion program. Students who have an overall GPA of at least 2.5, but have not completed all prerequisites, may be admitted into the Pre-RN/BSN program. Admission into the upper-division RN/BSN program is competitive. Applications for the upper-division RN/BSN program, along with all required transcripts, must be received in the Office of Undergraduate Admissions by March 15 to be considered for the Fall semester and by October 1 to be considered for the Spring semester.

NEW STUDENT ORIENTATION/REGISTRATION

New students are encouraged to participate in one of the **Student Orientation, Advising, and Registration (SOAR)** sessions scheduled in June and at the beginning of each semester. Separate programs are offered for freshmen and their parents, and for transfers. Activities include: academic advising; placement tests in mathematics, and foreign language proficiency tests; introduction to academic support services, student organizations, and campus life; and registration for classes. Placement and proficiency examinations are given to determine the appropriate courses for all new students to take in **mathematics** and **foreign language** and for non-native speakers of English to take in **English.**

Foreign Language Proficiency Procedures. Students who successfully completed three units of the same foreign language in high school are exempt from taking the language proficiency test and are considered proficient in that language for General Education requirements. The exemption only applies to General Education; certain majors require foreign language course work. Students who do not present three units of the same foreign language in high school must comply with the policy below.

Freshmen and transfers are required to pass or place out of the third college level course (e.g., French 1102) in a language studied for at least two years in high school, or to pass the second college level course in a new language not studied for two years in high school. Students who plan to continue study of the language taken in high school must take a UNC Charlotte Foreign Language Proficiency Exam. Proficiency examinations are offered in French, German, Italian, Latin and Spanish during SOAR. Contact the Department of Languages and Culture Studies for additional information.

Mathematics Placement Procedures. Freshmen and transfers who have not completed all mathematics courses required for their program of study must take a placement examination to determine the appropriate entry-level mathematics course for them. *All students entering the College of Engineering must take this placement examination.* Contact the Mathematics Department for additional information.

English Placement Procedures for Non-Native Speakers of English. All undergraduate degree students who are non-native speakers of English are required to take the UNC Charlotte English Placement Test to determine whether they must enroll in ENGL 1100 or ENGL 1101. The test must be taken at the beginning of their first semester at UNC Charlotte. To receive transferred credits equivalent to ENGL 1101/1102, non-native speakers of English must first pass the placement test or successfully complete ENGL 1100 and ENGL 1101. Contact the English Department or the Office of International Programs for additional information.

International Student Orientation, required for non-resident (F-1 & J-1 visas) students, is held at the beginning of every semester. Orientation topics include immigration, academics, cultural adjustment, and program opportunities.

Contact the International Student/Scholar Office for more information.

READMISSION OF FORMER STUDENTS

A student who has been suspended or has not attended UNC Charlotte for 24 consecutive months must make application for readmission to the University prior to the semester or summer term for which registration is sought. Application should be filed at the Registrar's Office in accordance with the published dates.

Former students, who left the University in good standing AND who plan to return in less than 24 months, may contact the Registrar's Office and complete a brief enrollment form in order to register. Such students must meet the GPA and departmental progression requirements of the major in which they will return. Official transcripts from any institution attended during the student's absence from the University must be submitted prior to enrollment.

For information on readmission after suspension for academic reasons, see the *Academic Regulations* section of this *Catalog*.

A.A. Degree Rule. Students who leave UNC Charlotte and subsequently eam an Associate of Arts (A.A.) degree may apply for admission as transfer students, and transfer a maximum of 64 semester hours, including hours from UNC Charlotte or other four-year institutions *applied to the A.A. degree.* Students may be readmitted one time under either this A.A. Degree Rule or the Two-Year Rule (below) but not both.

Two-Year Rule for Undergraduate Students. Any undergraduate student who has not been enrolled at UNC Charlotte for a minimum period of 24 consecutive months is eligible for *one* readmission under the "Two-Year Rule." Students may be readmitted one time under either the A.A. Rule or the Two-Year Rule, but not both. The Two-Year Rule will be applied automatically if the student is eligible. (Students electing not to have it applied may exercise this option by filing a form with the Registrar after consulting with their advisor.) Colleges and departments with published admission or continued enrollment standards that are more restrictive than general University requirements retain the right to admit or to deny admission to a specific program.

If a student is readmitted under the provisions of the Two-Year Rule, then only those courses for which the student has received a grade of *C* or better (or *H* or *P*) can be used for academic credit. Grade point averages will be based only on the courses that return with them and the work attempted after readmission. Eligibility for continued enrollment is determined as in the case of transfer students. To qualify for graduation with Honors, a student must have a grade point average computed on at least 48 hours taken in residence on which the UNC Charlotte GPA is based.

Second Baccalaureate Major/Additional Minor. Students who have earned a bachelor's degree from UNC Charlotte may apply for readmission into a program leading to a second major or to an additional minor. See requirements that follow.

ADULT STUDENTS ADMISSION PROGRAM (ASAP)

Adult students, 25 years of age or older, who have been out of school for five or more years and present appropriate educational credentials are encouraged to make application through the Undergraduate Admissions Office. This unique program offers adults the opportunity for special admissions status, an academic advisor through the Office of Adult Students and Evening Services (OASES), and adult transitional support services throughout the first two years of their enrollment. Students who declare a major are advised through their major department.

ADMISSION FOR SECOND BACCALAUREATE DEGREE

Students who have earned a bachelor's degrees from UNC Charlotte or another accredited institution may apply for admission to a program leading to a second degree of the same level if the following requirements are met:

1. Application in writing must be made to the Undergraduate Admissions Office in accordance with the published application dates.
2. The major field selected must be different from that of the first degree.
3. The degree sought must be different from the first when that degree was granted by UNC Charlotte.
4. The applicant must meet the requirements for acceptance into the selected field.

OTHERS ELIGIBLE FOR ADMISSION

Escrow Program Participants. The Escrow Program provides an opportunity for highly qualified students to take college credit courses while enrolled in secondary school. Records of credit earned will be maintained for use at the University or at another institution of higher learning.

Applicants recommended for participation in the program usually have shown great ability in particular academic areas. The recommendations are normally made by the secondary school principal.

Requests for additional information and application forms should be directed to the Office of Undergraduate Admissions at UNC Charlotte.

Senior Citizens. Residents of North Carolina who have attained the age of 65 and who meet applicable admission standards may enroll tuition-free on a space-available basis. Senior citizens are obligated to pay any special fees or service charges that are assessed all students. Interested persons should contact the Office of Undergraduate Admissions.

Non-degree Students. Non-degree students are those who are not seeking a degree at UNC Charlotte. If space is available, they may enroll in undergraduate courses at the University until they have attempted a total of 18 semester hours with grade evaluation. Regular degree students will have preference for places in classes. Non-degree students are expected to conform to the standards required of all students. After reaching the 18-hour limit, non-degree students must be reviewed and be accepted for regular degree status before continuing at the University.

Non-degree students who have done previous college work (including UNC Charlotte) must be eligible to return to the institution last attended.

The student must be 18 years of age or over and must understand at the time of his/her registration that the work completed in non-degree student status will be evaluated in terms of major department and degree requirements only after the student's formal admission to a degree program.

Visiting Students. Students enrolled at other colleges and universities who have written permission from their institutions to take specified courses at the University in a given semester or term may be admitted as visiting students. They register on a space available basis after UNC Charlotte degree seeking students.

FINANCIAL INFORMATION

STUDENT EXPENSES AND FEE PAYMENT

Charges for tuition and fees vary according to the student's status as a resident or nonresident of North Carolina. A nonresident student pays a higher rate of tuition than a legal resident.

The University reserves the right, with the approval of proper authorities, to make changes in tuition and fees at any time. The University also reserves the right to correct any clerical errors on a student's account.

Student Expenses. Graduate students taking nine or more semester hours and undergraduate students taking 12 or more semester hours during a regular semester will be charged full tuition and fees. Students taking fewer than the nine hours for graduate study and 12 hours for undergraduate study will be charged a prorated portion of tuition and fees as specified in the fee schedules in this *Catalog*.

Costs of tuition and fees for the regular academic year for a typical full-time North Carolina student are $2,138 and for a typical out-of-state student, $9,408. The costs of housing and dining for the academic year are $3,304 to $5,618, depending on the options chosen.

The estimated average cost of books and supplies per semester varies by area and level of study and ranges from $350 to $450. Beginning students in architecture and engineering should allow an additional expense of $200 to $300 for drawing instruments, calculator and supplies. Uniforms and supplies for nurses cost approximately $300.

In addition to the above, the student should take into consideration the cost of clothing, snacks, recreation, laundry, transportation, etc., in planning his/her expenses for each semester.

Fee Payment. Tuition and fees are due and payable by the date specified on the bill. Advance registration billing and due dates of fees vary with the term. Checks and money orders should be made payable to UNC Charlotte. Visa and MasterCard are accepted.

Returned Check Policy. If a check is returned by the bank, a letter is sent to the maker indicating that a penalty of $20 has been assessed and the account must be settled within 10 working days or the check will be considered to be a bad check and be processed accordingly. A hold will be placed on the student's record until the bad check is covered and the penalty is paid.

A student who pays a previous balance with a check in order to have a registration hold flag lifted will have their registration cancelled if the check is returned by the bank for any reason.

RESIDENCE STATUS FOR TUITION PURPOSES

Tuition charges are based upon classification of a student as a resident or a nonresident for tuition purposes. UNC Charlotte shall determine whether a student is a resident or a nonresident for tuition purposes in accordance with North Carolina General Statutes that are summarized below.

Residence. Generally, in order to qualify as a resident for tuition purposes, a person must be a legal resident of North Carolina AND must have been a legal resident of North Carolina for at least 12 months immediately prior to classification as a resident for tuition purposes. Legal residence is accomplished by maintaining a bona fide domicile of indefinite duration as opposed to maintaining a mere temporary residence incident to enrollment at an institution of higher education.

Initiative and Proof of Status. A student is responsible for seeking classification as a resident for tuition purposes. A student must (1) provide all of the information UNC Charlotte requires for consideration of residence classification and (2) establish facts that justify classification as a resident for tuition purposes.

Parents' Domicile. If a student has living parents(s) or a court-appointed guardian, the legal residence of the parent(s) or guardian is primary proof of the legal residence of the student. **This primary proof of a student's legal residence may be supported or rebutted by other information.**

If a student's parents are domiciled outside of North Carolina, their domicile will not be primary proof of the student's legal residence if the student has lived in North Carolina during the five years preceding enrollment or re-registration at UNC Charlotte.

Effect of Marriage. If husband and wife are legal residents of North Carolina and one of them has been a legal resident longer than the other, the longer duration may be claimed by either spouse in meeting the 12-month durational requirement for classification as a resident for tuition purposes.

Military Personnel. A North Carolinian who serves outside the State in the armed forces does not lose North Carolina domicile and thus North Carolina legal residence simply by reason of such service. Students in the military may prove retention or establishment of legal residence by reference to residentiary acts accompanied by residentiary intent.

In addition, North Carolina General Statutes provide tuition rate benefits to certain military personnel and their dependents who do not otherwise qualify for the in-state tuition rate. Members of the armed services, while stationed in and concurrently living in North Carolina, may be charged a tuition rate lower than the out-of-state tuition rate to the extent that the total of entitlements for applicable tuition costs available from the federal government, plus certain amounts calculated by reference to a North Carolina statutory formula, is a sum less than the out-of-state tuition rate for the applicable enrollment.

A dependent relative of a service member stationed in North Carolina shall be charged the in-state tuition rate while the dependent relative is living in North Carolina with the service member. Under this provision, the dependent relative must comply with any applicable requirements of the Selective Service System.

Tuition benefits based on military service may be enjoyed only if requirements for admission to UNC Charlotte have been met. The military service tuition statute does not qualify a person for or provide the basis for receiving derivative benefits under other tuition statutes.

Grace Period. If a student (1) is a legal resident of North Carolina, (2) has consequently been classified a resident for tuition purposes, and (3) has subsequently lost North Carolina legal residence while enrolled at UNC Charlotte, the student may continue to enjoy the in-state tuition rate for a grace period of 12 months measured from the date the student lost his or her status as a legal resident. If the 12 month grace period ends during an academic term in which the student is enrolled at UNC Charlotte, the grace period extends to the end of that term. Marriage to one domiciled outside of North Carolina does not, by itself, cause loss of legal residence, marking the beginning of the grace period.

Minors. Minors (persons under 18 years of age) usually have the domicile and thus the legal residence of their parents. However, certain special cases are recognized in determining residence for tuition purposes.

(a) If a minor's parents live apart, the minor's legal residence is deemed to be North Carolina for the time period(s) that either parent, as a legal resident of North Carolina, may claim and does claim the minor as a tax dependent. Under this provision, a minor deemed to be a legal resident will not, upon turning eighteen before enrolling at an institution of higher education, lose North Carolina legal residence if he or she (1) acts in a manner consistent with bona fide legal residence in North Carolina and (2) begins enrollment at UNC Charlotte no later than the fall academic term immediately following completion of education prerequisite to admission at UNC Charlotte.

(b) If a minor has lived for five or more consecutive years with relatives (other than parents) who are domiciled in North Carolina and if the relatives have functioned during this time as if they were personal guardians, the minor will be deemed a resident for tuition purposes for the enrolled term commencing immediately after the five years in which these circumstances have existed. Under this provision, a minor deemed to be a resident for tuition purposes immediately prior to his or her eighteenth birthday will be deemed a legal resident of North Carolina for the required 12 month period when he or she turns eighteen; provided he or she does not abandon North Carolina legal residence.

Lost but Regained Legal Residence. If a student ceases enrollment at or graduates from UNC Charlotte while classified a resident for tuition purposes and then abandons and reestablishes North Carolina legal residence within a 12-month period, that student shall be permitted to re-enroll at UNC Charlotte as a resident for tuition purposes without meeting the 12-month durational requirement. Under this provision, the student maintains the reestablished legal residence through the beginning of the academic term for which in-state tuition status is sought. A student may receive the benefit of this provision only once.

Change of Status. A student accepted for initial enrollment at UNC Charlotte or permitted to re-enroll following an absence from the institutional program that involved a formal withdrawal from enrollment must be classified by the admitting institution either as a resident or

as a nonresident for tuition purposes prior to actual enrollment. A residence status classification once assigned (and finalized pursuant to any appeal properly taken) may be changed thereafter (with corresponding change in billing rates) only at intervals corresponding with the established primary divisions of the academic year.

Transfer Students. When a student transfers from one institution of higher education to another, he or she is treated as a new student and must be assigned an initial residence classification for tuition purposes.

Appeal Procedure. A student may request a review of decisions by the Undergraduate Admissions Office or Office of the Registrar relating to in-state or out-of-state residence for tuition purposes. Appeals should be submitted in writing to Residency Specialist, Division of Business Affairs, and must include address, telephone number, and student I.D. number. Graduate student appeals should be submitted to the Graduate School.

TUITION AND FEES PER SEMESTER

*Following are tuition and fees **authorized for 2000-01**. They are subject to change by the appropriate authorities.*

UNDERGRADUATES		
	Resident	**Non-Resident**
0 Hrs.	$275.00	$1183.00
1-5 Hrs.	275.00	1183.00
6-8 Hrs.	546.75	2364.75
9-11 Hrs.	928.00	3654.00
12 or more Hrs.	1069.00	4704.00

***Post-baccalaureate students** who are taking **only** undergraduate courses will pay tuition and fees at the undergraduate rate. Post-baccalaureate students taking one or more graduate credit courses will pay tuition and fees at the graduate rate for **all** courses*

*The following Student Activities Fees are included in the **full-time** tuition and fee amounts. Fees per semester are:*

Educational and Technology.....$44.50
Student Activity Facility.....65.00
Student Activity Center Operations.....55.50
Cone Center Facilities.....14.00
Cone Center Operating.....62.50
Student Activity.....20.50
Physical Education Facilities Maintenance.....5.50
Physical Education Facility.....5.00
Health Center.....60.00
Athletic.....150.00
Intramural.....18.50
Student I.D.....2.00

Total fees per full-time student, per semester..... $503.00

HOUSING PER SEMESTER

Shared Residence Hall space is **not** available to married students and/or their family members. The following **2000-2001** prices and plans are subject to change.

Apartment.....$1,338.00 to $1,669.00
Residence Hall -- Double Room.....$1,152.00
Residence Hall -- Single Room (if available).....$1,650.00
Suite.....$1,256.00 to $1,647.00

DINING SERVICES PER SEMESTER

The following **2000-2001** prices and plans are subject to change. These options are available to freshmen living in housing areas that require meal plans:

14 meals per week with $200
declining balance.....$1,025.00

12 meals per week with $300
declining balance.....$1,140.00

10 meals per week with $400
declining balance.....$1140.00

150 block plan with $100
declining balance.....$920.00

Upper-classmen living in housing areas that require purchase of a meal plan may select one of the plans listed above or one of the following:

Declining Balance Account..... $720.00 or $1,025.00
125 block plan with $175 declining balance.....$845.00

Students living in apartments may select the following meal plan or any of those above:

Declining balance account..... $500.00

Commuters or UNC Charlotte apartment residents may purchase any of the plans listed above.

Any student, faculty or staff member may purchase or add additional Optional Declining Balance funds to their 49er ID card. Optional Declining Balance can be purchased directly from the food service contractor, Sodexho Management Services, located in the ID Card office in the Cone University Center. New Optional Declining Balance accounts require a minimum purchase of $25 and may be paid in cash, by check, or charged to Visa or MasterCard.

SPECIAL ASSESSMENTS

During 2000-01, the following special assessments were charged to cover the cost of supplies or special materials (per semester, except where indicated otherwise):

Nursing Course Fee (NURS 3203, 3253)..... $45.00
Scuba Diving (HPED 2219)..... $60.00
Advanced Scuba Diving (HPED 2220)..... $35.00
Applied Music Fee (1 credit hour)..... $45.00

Applied Music Fee (2 credit hours).....$90.00
College of Engineering Student Fee
1-7 hours (per academic year).....$76.00
8 hours or more (per academic year).....$150.00
College of Information Technology student fee
1-7 hours (per academic year).....$76.00
8 hours or more (per academic year).....$150.00
Teacher Licensure Fee.....$30.00
Cooperative Education Fee.....$75.00
Architecture Major General Student Fee
(per academic year).....$80.00
International Student Fee (per academic year).....$100.00
Administrative Cancellation Fee.....$75.00

Application Fee. A $35 application fee must be submitted with the application for admission. The fee is not deductible and is not refundable.

Housing Deposit. Admission to UNC Charlotte does not guarantee residence hall space. Arrangements for on-campus housing are made, after admission, with the Associate Vice Chancellor for Housing and Residence Life. Residence hall space is not available to married students or their families.

All housing applications must be submitted with a $100 deposit. The deposit is refundable, minus any outstanding damages and charges, upon departure from the residence life system. No deposits for fall semester are refunded after May 14. No deposits for spring semester are refunded after November 24. All students living in the residence halls will have an $11 Residence Hall Association fee included in their semester housing charges.

Student Activities Fee. A part of the general fee provides students with a program of cultural, recreational, and entertainment activities. It pays for admission to many athletic contests, dramatic productions, activities sponsored by the University Program Board, social and entertainment functions, and for subscriptions to the campus newspaper and literary magazine.

Graduation Fee. Each member of the graduating class must pay a graduation fee of $35 at the time he/she applies for the degree. This fee includes the cost of the diploma and the cap and gown. No reduction of the fee is allowed for those receiving degrees in *Absentia*.

Credit By Examination Fee. Fees for credit by examination are as follows: A written examination for a course will require a fee of $15. A laboratory examination requiring the arrangement of such things as laboratory materials will require a fee of $25. A combination of a laboratory and written examination will require a fee of $30.

Tuition Surcharge. Undergraduate students who take more than 140 credit hours (or more than 110 percent of the hours required to complete their baccalaureate degree program) are subject to a 25 percent tuition surcharge on the excess hours taken. However, the surcharge will not apply to students who exceed these credit hour limits while completing their degree within the equivalent of four academic years, or in the case of five-year programs, within the equivalent of five academic years. Finally, the surcharge does not apply to students who entered the University before Fall 1994.

MOTOR VEHICLE REGISTRATION FEES

Students attending UNC Charlotte are required to register their motor vehicle(s) in order to park on campus; there is no free parking. Vehicle registration for fall and spring semesters begins two weeks prior to the first day of classes. Students may request parking permits to be mailed directly to them (fall term only) by contacting Parking Services at least one month prior to the beginning of classes (704-687-4285). Payment must be received before the permit is mailed. Enforcement begins the first Monday after classes begin in the fall and spring semester and the first day of class in the summer terms. Two categories of permits are issued: *Resident* (for students living on campus) and *Commuter* (for students living off campus).

Permits sold in August are good for one year. Students who graduate in December may return their parking permit for a partial refund. The price of the permit is the same for faculty, staff and students. In 2000-2001, permits cost $175 but this cost is subject to change. Parking Services receives no state funding; therefore, parking fees are used to defray construction and operating expenses.

Night permits, valid only after 3:00 p.m., are sold at a reduced rate using the same schedule as the regular student permits. Students with night permits who come on campus before that time must park and pay at the meters or in visitors' spaces.

Penalties for Parking Violations. Violators of University parking regulations are subject to monetary penalties ranging from $5 to $100, depending on the seriousness of the violation. Copies of parking regulations are distributed with the parking permit. If a citation is not paid or appealed within 10 days, the penalty will be applied to the student's account with the University. Subsequent registration may be withheld for non-payment. Parking citations are issued 24 hours a day. Decals and meters are enforced from 8:00 a.m. until midnight, Monday through Thursday and from 8:00 a.m. until 3:00 p.m. on Friday.

Questions concerning parking on campus should be directed to Parking Services, which is open from 8:00 a.m. until 5:00 p.m. Monday through Friday. Emergency situations and questions at other times should be directed to 704-687-2200.

REFUNDS

TUITION AND FEES REFUNDS

A student who officially withdraws from the University in the fall or spring semester will receive a refund as follows:

Fall or Spring Semester	% of Tuition and Fees Refunded
Before 1st Class Day Week 1	100% 100% minus $25 withdrawal fee
Week 2	100% minus $75 withdrawal fee

Week 3	80%
Week 4	75%
Week 5	70%
Week 6	60%
Week 7	55%
Week 8	50%
Week 9	40%
After Week 9	0%

Summer School: A student who officially withdraws from the University during summer school will receive a refund as follows:

5 and 10 Week Summer Terms	% of Tuition and Fees Refunded
Before 1st Class Day	100%
Day 1 - 2	100% minus $25 registration fee
Day 3 - 5	80%
Day 6 - 7	70%
Day 8 - 10	60%
Day 11 - 12	50%
Day 13 – 14	40%
After Day 14	0%

Students registered for short courses and institutes **only** during summer school will receive refunds upon withdrawal from the University as follows:

Special Term	% of Tuition and Fees Refunded
Before 1st Class Day	100%
First Class Day	100% minus $25 withdrawal fee
Second Class Day	50%
After Second Class Day	0%

Exception: Charges are refundable by administrative action on a prorated basis for the unexpired portion of the term for the following reasons: death of the student, withdrawal for adequate medical reason as certified by the University Student Health Center or family doctor, death in the immediate family that necessitates student withdrawal, and dismissal or suspension from school. Immediate family is defined as wife, husband, parent, child, brother, sister, grandparent, and grandchildren and includes step, half, and in-law relationships. Appropriate documentation must be submitted to the Registrar.

No refunds will be given to students who are withdrawn by administrative action for failure to comply with the North Carolina immunization laws.

HOUSING REFUNDS

The rental period for academic year contracts is for the entire academic year (fall and spring semesters) continuing until the end of the spring semester, regardless of occupancy date after the fall semester begins. The housing and dining contract binds the student and/or guarantor to the full amount of charges for housing for the academic year except as noted:

Effect of Cancellation

Cancellation Date	*Effect of Cancellation*
• By 5:00 p.m. May 15, 2001, for **fall** 2001 semester: • By 5:00 p.m. on November 21, 2001, for **spring** 2002 semester:	$100 deposit refunded and all housing and dining charges removed from student's account.
• After 5:00 p.m. on May 15, 2001, to 5:00 p.m. on August 8, 2001, for **fall** 2001 semester: • After 5:00 p.m. on November 21, 2001, to 5:00 p.m. on January 2, 2002, for **spring** 2002 semester:	Forfeiture of $100 housing deposit; all other housing and dining charges removed from student's account.
• After 5:00 p.m. on August 8, 2001, for **fall** 2001 semester: • After 5:00 p.m. on January 2, 2002, for **spring** 2002 semester:	Forfeiture of $100 housing deposit; payment of $400 liquidation fee; housing charges on a prorata basis.

NOTE: Dates listed are for academic year 2001-2002 only. Cancellation dates for future academic terms will be adjusted yearly to reflect the calendar. Total cost for period occupancy to student, including deposit and liquidation fee, will be limited to the total cost of semester housing. ***Please see housing contract for full semester financial obligations.***

Summer School: Summer school housing charges are refundable based on the number of weeks of occupancy.

Appeal Procedure

Appeals about tuition and dining refunds should be submitted in writing to Student Accounts, UNC Charlotte, Charlotte, NC 28223. Appeals about housing refunds should be submitted to Department of Housing, UNC Charlotte, Charlotte, NC 28223. Appeals are heard on a monthly schedule by the Tuition, Housing, and Dining Appeal Committee.

FINANCIAL AID

UNC Charlotte administers financial aid without regard to race, color, national origin, religion, sex, sexual orientation, age, or disability.

The University offers a comprehensive program of student financial aid (scholarships, grants, loans, and part-time employment) to assist both graduate and undergraduate students in meeting educational expenses. Reasonable educational expenses include tuition and fees, room and board, books, supplies, transportation, miscellaneous personal expenses, and expenses related to maintenance of a student's dependents.

Eligibility. The programs of student financial aid are administered according to a nationally accepted policy that the family, meaning parents (or those acting in place of parents) and/or spouse, is responsible for a student's educational expenses. Therefore, eligibility for financial aid will be determined by a comparison of a budget (educational expenses as defined above) for the period of attendance with what the student's family can reasonably be expected to contribute.

A financial aid applicant will be considered for available assistance for which he/she is eligible if the student:

1. Completes the application process and related forms only after thoroughly reading all instructions.
2. Completes the admission application process and is accepted for enrollment at UNC Charlotte.
3. Is working toward a degree and not simply taking courses.

APPLICATION PROCESS

To apply for the following programs, a student must complete the **Free Application for Federal Student Aid** using the instructions and mailing address provided with the form. The form is available in the UNC Charlotte Financial Aid Office and in high school counseling offices.

Federal Stafford Student Loans
Federal Pell Grant*
Federal Perkins Loan
Federal Supplemental Educational Opportunity Grant*
Federal Work Study
N.C. Student Incentive Grant*
UNC Need Based Grants*
University Grants
University Loans
University Need-based Scholarships

* *For undergraduate students only.*

RENEWAL PROCESS

Renewal of financial aid is based upon a student's making satisfactory academic progress. The Free Application for Federal Student Aid is required each year that a student applies for financial aid.

FINANCIAL AID PROGRAMS

LOANS

Federal Perkins Loan--Applicants may request amounts based on financial need up to a total of $15,000 for a four-year degree and an aggregate total of $30,000 for graduate study. The interest rate is five percent with repayment beginning nine months after graduation.

Federal Stafford Loans--Qualified undergraduate applicants may borrow up to $2,625 for the first year, $3,500 for the second year, and up to $5,500 per year for the remainder of undergraduate study. Graduate students may borrow up to $8,500 per year. Independent students may be eligible to receive additional loan amounts.

The interest rate is variable, and repayment begins six months after the borrower ceases to be a student.

Short-Term Emergency Loans--Students may borrow up to $150 for unanticipated expenses that occur during the semester and up to $1,000 for tuition expenses. The loans have a $1 service charge, but no interest is charged. Loans must be repaid within 30 to 60 days. Funds for these loans are provided by private donation.

GRANTS

Federal Pell Grants--These are for undergraduate students and can range from $400 to approximately $3,700, based on the student's financial need. It is an entitlement program, meaning that any student who applies and is determined to be eligible will receive funds.

Federal Supplemental Educational Opportunity Grants--These are for undergraduate students and range from $200 to $1,000. Eligibility is based on financial need and is determined within the UNC Charlotte Financial Aid Office, with priority to lowest income students.

North Carolina Minority Presence Grant Program--The University of North Carolina Board of Governors provides funding to historically white and historically black institutions to aid them in recruiting financially needy North Carolina students who would be minority presence students at the respective institutions by enabling the institutions to offer relatively more aid for minority presence students in the form of grants rather than loans. Minority Presence Grants range up to $1,000. There are a limited number of awards available to both graduate and undergraduate students.

UNC Charlotte Grants--UNC Charlotte administers several other grant programs funded by the State of North Carolina and requires North Carolina residency for consideration. These are available to both graduate and undergraduate students who apply by the established priority date of April 1.

Employment On-Campus. The Student Employment Office assists students in locating work on campus. The University participates in the federal Work-Study Program and attempts to match students with jobs related to their academic interests.

Part-Time Employment Off-Campus. The University Career Center assists students in obtaining part-time employment off-campus. Job listings and assistance are available in the Atkins Building. Students are encouraged also to participate in career related experiences such as co-op, internships, and 49erships, which can be arranged through the University Career Center.

Education for the Vocationally Handicapped. Students who have suffered a disability that renders them vocationally handicapped are eligible for aid provided by the North Carolina State Division of Vocational Rehabilitation. This aid takes the form of services that include vocational counseling and guidance and placement. Payment of expenses such as training, medical treatment, room and board, books, fees, and tuition may be available. A vocational rehabilitation officer is available in Charlotte for interviewing applicants. Appointments may be made by contacting Vocational Rehabilitation Services located at 401 S. Independence Blvd., (704) 342-5049.

Veterans Benefits. UNC Charlotte's Veterans Service Office (VSO), located in the Office of the Registrar, works with the Veterans Administration to assist in administering the various programs of benefit to veterans or eligible relatives of veterans. The VSO Certifying Official certifies enrollment and transmits necessary credentials and information to the proper Veterans Administrative Office.

Admission to the University should be obtained before the student makes application for veteran's benefits. Applicants must be accepted into a degree program to receive benefits.

In order to be eligible for the full monthly allowance under any of the above laws, an undergraduate student must be enrolled for 12 or more semester hours and a graduate student must be enrolled for nine or more semester hours. Those enrolled on a part-time basis will be eligible for part-time compensation. Students are responsible for reporting any change in enrollment status to the VSO Certifying Official.

Children of Veterans. The North Carolina Department of Veterans Affairs awards scholarships for the children of certain deceased or disabled veterans. Those awarded "full" scholarships are entitled to tuition, mandatory fees, board allowance, and room allowance; those awarded "limited" scholarships are entitled to tuition and mandatory fees. All inquiries should be referred to the North Carolina Division of Veterans Affairs, Albermarle Building, Suite 1065, 325 North Salisbury St., Raleigh, NC 27601, telephone (919) 733-3851.

Before the time of registration, each eligible student who wishes to enter the University should: (1) apply for admission following University procedures and (2) apply for a scholarship award to the North Carolina Department of Veterans Affairs.

SCHOLARSHIPS

UNC Charlotte offers a comprehensive program of undergraduate scholarships. Some of these are awarded entirely on the basis of merit, but individual financial need is a consideration in the awarding of many of them. The University's major awards for merit are the:

Alumni Scholarships
Reese A. Overcash Scholarships
C. C. Cameron Scholarships
D. W. Colvard Scholarships
Lloyd C. and Luella L. Danielson Scholarships
Cameron Morrison Scholarships
Bonnie E. Cone Scholarships
R. L. Stowe Scholarships
E. K. Fretwell Scholarships
John L. and Margaret S. Fraley Scholarships
Provost Scholarships
Fay and Cal Mitchell Scholarships
Clara MacKay and Charles H. Stone Scholarships
J. Murrey Atkins Scholarships
Rebecca and Walter Roberts Scholarships

The Alumni Scholarships are awarded annually to continuing students of the University who have proven outstanding scholastic attainment, participated in University and/or community activities, and demonstrated campus leadership. The scholarships were established in 1978 to recognize outstanding full-time students and to encourage their continuing involvement and interest in the activities of the University. Information concerning the scholarships is distributed to each department and college within the University each year prior to the award and contains material outlining application procedures for the scholarships.

The Reece A. Overcash Scholarships are UNC Charlotte's most prestigious scholarships for merit. The Overcash family established the scholarship endowment in honor and memory of Reece A. Overcash, a member of the first class at the Charlotte Center of the University of North Carolina. This merit based award seeks to attract students who demonstrate academic excellence, leadership, and service to others.

The C. C. Cameron Scholarships established by First Union Corp., honor Mr. C. C. Cameron, who served as Chairman of First Union and as Chairman of the UNCC Board of Trustees. The purpose of the Cameron Scholars program is to bring outstanding students to UNC Charlotte. Recipients are selected on the basis of academic achievement, demonstrated leadership and service to others. Cameron Scholars are provided financial assistance and work experiences which encourage intellectual growth and stimulate the will to achieve full potential.

The D. W. Colvard Scholarships honor Dr. Dean Wallace Colvard, first chancellor of The University of North Carolina at Charlotte, and his wife, Martha, who were instrumental in founding Friends of UNCC. Dr. and Mrs. Colvard have personified the quest for excellence at UNC Charlotte. The Colvard Scholarships are awarded to applicants judged on the basis of their achievements in high school, college aptitude tests, and their promise of making meaningful contributions to society. Their roles as leaders and their service to school and community are weighed carefully.

The Lloyd C. and Luella L. Danielson Scholarships were established by the estate of Lloyd C. and Luella Danielson to attract students of good moral character and great potential to UNC Charlotte's Mechanical Engineering majors.

The Cameron Morrison Scholarships, first awarded in 1985, were established as a memorial to former Governor and Mrs. Cameron Morrison. The need-based scholarships recognize students who are public high school graduates from Mecklenburg and Richmond Counties who seek self-improvement and demonstrate initiative and ability. Entering students ranking in the upper 10 percent of their high school graduating class are given preference.

The Bonnie E. Cone Scholarships have been endowed by Clara McKay (Mrs. Charles H.) Stone of Charlotte and other friends of Charlotte College. The scholarships honor Dr. Bonnie E. Cone, founder and developer of Charlotte College, from which UNC Charlotte developed. The Bonnie E. Cone Scholarships are awarded annually to students having high moral character and proven scholastic attainment and whose further education at the University will, in the judgment of the scholarship committee, enhance the citizenship of the recipients and advance the service of UNC Charlotte as an institution of excellence.

The R. L. Stowe Scholarships were established in 1990 to honor R. L. Stowe who opened Belmont, North Carolina's first spinning plant, the Chronicle Mill in 1901.

The E. K Fretwell Scholarships were established in 1990 in recognition of Dr. E. K. Fretwell Jr., chancellor of UNC Charlotte from 1979 to 1989. The primary purpose of the awards is to attract students of great potential to the University. The scholarships' founders believe that such students stimulate and challenge fellow students and faculty members. Fretwell Scholarships are awarded to graduating high school seniors based on achievements in school, college aptitude test scores, service to school and community, potential for leadership and for making meaningful contributions to society.

The John L. and Margaret S. Fraley Scholarships were established in honor of John L. Fraley, Sr., retired Chairman of the Board and CEO of Carolina Freight, and his wife, Margaret, as a commitment to the continued strength of corporate America. The recipients must be North Carolina residents with majors within The Belk College of Business Administration.

The Provost Scholarships honor the position of the Provost of the University and are designed to attract students with great potential.

The Fay and Cal Mitchell Scholarships were established in 1974 for students representing academic excellence and an SAT score of at least 1100.

The Clara McKay Stone and Charles H. Stone Scholarships were established in 1986 and first awarded in 1987. Mr. and Mrs. Stone were early supporters and major benefactors of the University. Through their efforts the following were established: the Bonnie Cone Scholarships, the Charles H. Stone Professor of Chemistry, the Charles H. Stone Professors of American History, and the Charles H. Stone Collection of the University Library.

The purpose of the Stone Scholarships is to provide scholarship assistance for worthwhile and deserving students and applicants for admission to the University who have high moral character and whose education at the University will better enable the recipients to live worthwhile and productive lives and to further the service of the University to society. The fund provides both merit awards and awards for students who are deserving, but may not have the ability for high academic attainment, and who are in need of financial assistance in order to further their education at the University.

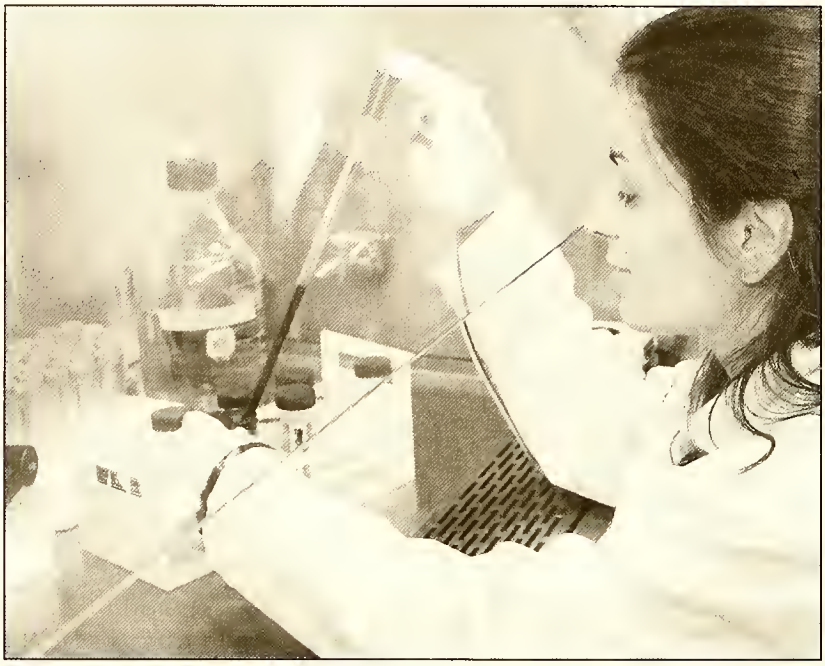
The J. Murrey Atkins Scholarships were established in 1963 in memory of J. Murrey Atkins, Sr., the first Chairman of the Board of Trustees at Charlotte College, which later became UNC Charlotte. The recipient must be a North Carolina resident.

The Rebecca and Walter Roberts Scholarships were established in 1999. The Roberts Scholarships were established to honor Walter and Rebecca Roberts. The education of Rebecca Roberts, a 1998 UNCC graduate, and the other children of Walter Roberts was ensured by a trust fund established by the Superior Continental Corporation following Walter Roberts' death. The remaining monies in the trust were generously donated to the University upon Rebecca Roberts' graduation.

The purpose of the Roberts Scholarships is to provide scholarship assistance to worthy non-traditional students pursuing a degree in Communication Studies. The Roberts Scholarships are awarded to applicants on the basis of their potential for success as Communication Studies majors.

Detailed information about the scholarships named above, including minimum qualifications, selection processes and the amount of the stipends, may be obtained from the Undergraduate Admissions Office.

Need-based and Departmental Scholarships. Numerous other scholarships are administered by the Student Financial Aid Office. In most cases, there is no special application for these scholarships, and all aid applicants will be considered unless the scholarship is noted as an exception. Normally, those students with demonstrated need and a grade point average of 3.5 or better will be considered for scholarships.



ACADEMIC REGULATIONS AND DEGREE REQUIREMENTS

Student Responsibility

Each student is responsible for the proper completion of his or her academic program, for familiarity with the *University Undergraduate Catalog*, for maintaining the grade average required, and for meeting all other degree requirements. The advisor will counsel, but the final responsibility remains that of the student.

A student is required to have knowledge of and observe all regulations pertaining to campus life and student deportment. The University has enacted two codes of student responsibility: **The UNC Charlotte Code of Student Academic Integrity** and **The UNC Charlotte Code of Student Responsibility** which are summarized in this *Catalog*. As students willingly accept the benefits of membership in the UNC Charlotte academic community, they acquire obligations to observe and uphold the principles and standards that define the terms of UNC Charlotte community cooperation and make those benefits possible.

Each student is responsible for maintaining communication with the University and keeping on file with the Registrar's Office at all times a current address, including zip code, and telephone number.

Each student, while associated with the University, is expected to participate in campus and community life in a manner that will reflect credit upon the student and the University.

CATALOG POLICIES

The *Catalog* is not an irrevocable contract. Regulations published in it are subject to change by the University at any time without notice. University regulations are policy statements to guide students, faculty, and administrative officers in achieving the goals of the institution. Necessary interpretations of these policies will be made by the appropriate authorities with the interest of the students and the institution in mind. Students are encouraged to consult an advisor if they have questions about the application of any policy.

Each new edition of the *catalog* becomes effective at the opening of the fall semester following its publication. To receive a degree, an undergraduate student must complete satisfactorily all requirements described in the *catalog* in effect at the time of first enrollment as a degree student at the University or all requirements described in the *catalog* in effect at the time of graduation. Any student who changes from one major or minor to another must meet requirements of the new major or minor in effect at the time of the change. Any student who leaves the University or changes to another major or minor for a period of one calendar year or longer and then returns to the University or to the original major or minor will be required to meet requirements in effect at the time of return.

Exceptions to these policies may be necessitated by changes in course offerings, degree programs or by action of authorities higher than the University. In that event, every effort will be made to avoid penalizing the student.

ACADEMIC ADVISING

Each student entering a degree program at UNC Charlotte is assigned an academic advisor or advisory committee in the student's major field. The Advising Center in the College of Arts and Sciences advises students who have not yet chosen a major field and may be consulted by other students for information about General Education requirements. The advisor assists the student to develop a plan of study based on the student's prior preparation and objectives. This assistance is not a substitute for the personal responsibility of the student described in the section of this *Catalog* on *Student Responsibility*.

COURSE LOAD

Credits/Semester Hours. The unit of measurement of University work is the *semester hour*. It ordinarily represents one lecture hour per week for one semester; however, a sequence of two or three laboratory hours is considered to be the equivalent of one lecture hour. Semester hours are also referred to as credit hours or credits. A bachelor's degree requires 120-128 semester hours.

Course Load. A course load of 15-18 hours constitutes a normal full semester program for undergraduates. A student must complete 15-16 hours per semester to complete a bachelor's degree in four academic years. Enrollment in more than 18 hours in a semester requires advance written approval of the dean of the student's major college. An undergraduate student enrolled in 12 or more hours is considered to be a full-time student and must pay full tuition and fees.

A standard load for an undergraduate student enrolled in a summer session is six to seven credit hours. Enrollment in more than seven credit hours in a single summer session, or in concurrent summer sessions (e.g., a 10-week and a 5-week session), requires advance written approval of the dean of the student's major college.

The appropriate course load for an undergraduate student is dependent on two factors: scholastic ability as reflected by the student's academic history and available study time. Successful academic achievement usually requires about two hours of study per week outside of class for each credit hour in which the student is enrolled. For example, enrollment in 16 hours would require about 32 hours of outside preparation per week.

Tuition Surcharge. Undergraduate students who take more than 140 credit hours (or more than 110% of the hours required to complete their baccalaureate degree program) are subject to a 25% tuition surcharge on the excess hours taken. However, the surcharge will not apply to students who exceed these credit hour limits while completing their degree within the equivalent of four academic years, or in the case of five-year programs, within the equivalent of five academic years. (One quarter of enrollment at an institution on the quarter system equals two-thirds of a semester.) Finally, the surcharge does not apply to students entering the University before Fall 1994.

Credit hours that count toward the specified limits include: all courses attempted at UNC Charlotte during the fall and spring semesters (including repeated courses, failed courses, and those dropped after the last date to drop or withdraw without record) and all transfer credit hours (except those earned during summer sessions at another UNC institution). The maximum transfer credit hours applied toward the surcharge limit are the total hours required for the degree less the 30 hours necessary to meet residence requirements.

University Student Surveys. For purposes of program assessment and improvement, as part of enrollment at UNC Charlotte, students may be required to complete three or more institutional student surveys, e.g., surveys of entering freshmen, second semester sophomores, and graduating seniors.

Student Classification. At the beginning of each semester, regular students working toward a bachelor's degree are classified on the basis of earned semester hours:

Classification	Earned Semester Hours
Freshman	0-29
Sophomore	30-59
Junior	60-89
Senior	90 or more

REGISTRATION

The Registrar is responsible for the management of the registration process by which students enroll in classes. Registration policies and procedures for each term are described in the **Schedule of Classes** for that term. Also see the Registrar's web page at: http://www.uncc.edu/registrar.

Through the registration process, students assume academic and financial responsibility for the classes in which they enroll. They are relieved of these responsibilities only by formally terminating enrollment by dropping or withdrawing in accordance with procedures and deadlines specified in the **Schedule of Classes** each term.

Registration Deadlines. University policies determine when students may enroll or adjust their enrollment in classes. Deadlines for the spring and fall semesters are shown below. (*Deadlines for summer sessions are approximately proportional based on the length of the session.)*

Register for classes through the eighth instructional day of the semester.

Drop a class without record (and remain enrolled in other classes) through the sixth instructional day of the semester.

Withdraw from the University without record through the sixth instructional day of the semester.

Drop a class with grade of *W* recorded (and remain enrolled in other classes) through the sixth week of classes in the semester. No student will be allowed to drop a course after this deadline unless there are extenuating circumstances recognized by the University.

Withdraw from the University with grade of *W* recorded after the sixth instructional day through the third week prior to the last day of classes of the semester. No student will be allowed to withdraw after this deadline unless there are extenuating circumstances recognized by the University. (See the *Termination of Enrollment* section of this *Catalog*.)

Prerequisites and Permits. Credit will be awarded only to students who are properly registered for it. All students, including visitors and non-degree students, are required to meet course prerequisites and to obtain the required permissions to enroll in courses specified in the **Schedule of Classes.**

Auditors. With the consent of the instructor, a student may register as an *auditor* for any class in which space is available. Fees and procedures for this non-credit enrollment are the same as those for a credit enrollment.

No student will be allowed to change the designation of a course from audit to credit or from credit to audit after the eighth instructional day of a semester (or a proportional period for summer school).

The participation of auditors in class discussion and in tests or examinations is optional with the instructor. Auditors receive no University credit, but they are expected to attend class regularly. A formal record of the audit on the student's transcript is entered at the discretion of the instructor at the end of the course. The procedure for adding or dropping an audit course is the same as for credit enrollments.

Dual Undergraduate and Graduate Registration. Undergraduate students at UNC Charlotte who are required to take fewer than 12 semester hours of undergraduate work to fulfill all requirements for the bachelor's degree may be allowed during their final semester to enroll in certain courses for the purpose of obtaining graduate credit. Authorization for dual undergraduate/graduate registration may be obtained by submitting to the Dean of the Graduate School a Special Request Form approved by the student's undergraduate academic advisor, the instructor(s) of the graduate course(s), and the dean(s) of the college(s) offering the graduate course(s), accompanied by the regular application for admission to graduate study and supporting credentials. The total hours to be carried in this status shall not exceed 12 hours, of which no more than nine may be for graduate credit. On the basis of work attempted prior to the final semester, such student must meet the grade point criteria for admission to a graduate degree program at the University. No course for which credit is applied to an undergraduate degree may receive graduate credit. Permission to take graduate courses under dual registration does not constitute admission to any graduate degree program at the University.

Consortium Registration. The Charlotte Area Educational Consortium offers an inter-institutional exchange during the fall and spring semesters for *full-time undergraduate* students. UNC Charlotte students may take courses *not available at UNC Charlotte* at one of the institutions listed below, have them appear on their transcript and, be computed in their grade point average at this University. The registration process is initiated in the Registrar's Office and requires the approval of the student's college dean.

Anson Community College
Barber-Scotia College
Belmont Abbey College
Catawba College
Catawba Valley Community College
Central Piedmont Community College
Cleveland Community College
Davidson College
Gardner-Webb University
Gaston College
Johnson C. Smith University
Lenoir-Rhyne College
Livingstone College
Mitchell Community College
Pfeiffer College
Queens College
Rowan-Cabarrus Community College
Stanly Community College
University of South Carolina at Lancaster
Wingate College
Winthrop University
York Technical College

Inter-Institutional Registration. An inter-institutional registration program is available for a limited number of undergraduate and graduate students with the University of North Carolina at Greensboro, North Carolina State University, University of North Carolina at Chapel Hill, Duke University, NC Central University, and NC A&T University. The registration process is initiated in the Registrar's Office and requires the approval of the student's college dean.

TERMINATION OF ENROLLMENT

Drop. A student may terminate enrollment in a course but continue enrollment in other courses by following the procedure to drop a course specified in the **Schedule of Classes.** A student enrolled in only one course must withdraw officially from the University to drop the course.

Withdrawal from the University. Any student voluntarily leaving the University before the close of the term must withdraw officially. A student initiates the withdrawal procedure and files the completed form at the Registrar's Office in person or by letter. A withdrawal is effective when the form or letter is received by the Registrar's Office. A student who withdraws from the University after the sixth instructional day will receive the grade of *W* for all courses in progress. No student will be allowed to withdraw within two weeks prior to the last day of class (or as close to half the summer term as possible) unless there are extenuating circumstances such as serious illness recognized by the University and approved by the student's dean.

Any student who leaves the University before the close of a term without withdrawing officially will receive a failing or unsatisfactory grade (*F* for undergraduate credit and *U* for graduate credit) in each course for which he/she is registered. A graduate student who receives a *U* must appeal to the Dean of the Graduate School for reinstatement.

ATTENDANCE POLICY

Each instructor determines the attendance regulations for his or her classes. Students are expected to attend punctually all scheduled sessions in the courses for which they are registered and are responsible for completing the work from all class sessions.

Absences from class may be excused by the instructor for such reasons as personal illness, religious holidays, or participating as an authorized University representative in an out-of-town event. Whenever possible, students are expected to seek the permission of the instructor prior to absences.

DEGREE OR MAJOR PROGRAMS AND MINORS

Declaration of a Major. Undergraduate students must declare and be accepted into a major field of study, or a pre-professional program, by the time they have earned 60 semester hours of credit. Transfer students entering with 45 to 74 semester hours must declare and be accepted into a major field of study by the time they have earned 15 semester hours at UNC Charlotte. Transfer students entering with 75 or more semester hours must be accepted into a major as a condition for admission. Students who do not satisfy these requirements must have permission from the dean of Arts and Sciences to register for classes.

To facilitate the declaration process, advising is required prior to registration for continuing students who have completed 45 hours or more and have not been accepted into a major or pre-professional program.

Change of Degree or Major Program. An undergraduate student may change from one degree program or area of academic concentration to another when space is available provided he/she meets the prerequisites for admission to the new program and has appropriate written approval via a "Declaration of Program" filed at the Registrar's Office.

Second Baccalaureate Major. Students who have earned a bachelor's degree from UNC Charlotte or are working on a bachelor's degree at UNC Charlotte may enroll in a program leading to a second major under the same degree provided (1) the second major field selected is different from the first; (2) the student meets the requirements for acceptance into the second major program; and (3) the appropriate application for admission or "Declaration of Program" is filed and approved.

Minor. Students who have earned a bachelor's degree from UNC Charlotte or are working on a bachelor's degree at UNC Charlotte may enroll in a program leading to a minor (or minors) under that degree provided: (1) the student meets the requirements for acceptance into the minor program; and (2) the appropriate application for admission or "Declaration of Program" is filed and approved.

Second Baccalaureate Degree. Students who have earned bachelor's degrees from UNC Charlotte or other accredited institutions may enroll in a program leading to a second degree at the same level provided: (1) the major field selected is different from that of the first degree; (2) the degree sought is different from the first when that degree was granted by UNC Charlotte; and (3) the appropriate application for admission is filed and approved.

Students seeking a second baccalaureate degree must: (1) satisfy residency requirements if their first degree was not earned at UNC Charlotte; (2) achieve a minimum grade point average of 2.0 on all work attempted toward the second degree; and (3) satisfy all department and college requirements for the degree sought. Students who hold a baccalaureate degree from an accredited institution will not be required to satisfy the UNC Charlotte General Education requirements for a second degree.

Students who complete the equivalent of a double major in areas for which different degrees are awarded, but who have not met the requirements for the second degree, may have their accomplishment acknowledged by an appropriate notation on their transcript.

GRADING POLICIES

Instructors assign grades on the basis of their evaluation of the academic performance of each student enrolled in their courses. At the end of the term, the grades are reported to the Registrar's Office which is responsible for maintaining student academic records and making grades available to students.

Grade Reports. Final grades are available through the secure, student access pages of the Registrar's web page and through the telephone registration system (consult **Schedule of Classes** for access instructions). Unsatisfactory grade reports are mailed to students in the middle of each semester for courses in which the student is performing below average.

Final Grade Changes/Appeals. When a grade of other than *Incomplete (I)* is reported officially by an instructor at the end of a term, the grade is recorded by the Registrar and can be changed only if an error has been made in assigning or reporting the grade. When a grade is assigned consistent with University policy, only the instructor has the right to change the grade except as provided in the *Incomplete* grade policy. When an instructor reports a change for a grade other than *I*, the Change of Grade Form must be signed by his/her Department Chairperson and Dean. When a student believes that a course grade is incorrect, the student's inquiry should be directed to the instructor within 10 days after the formal grade report is received. If the student is unable to resolve the grievance through consultation with the instructor, a written request for review of the course grade may be submitted to the chair of the department or program in which the course was taught. Requests for review must be submitted within the first four weeks of the next regular academic semester. Requests for review submitted after the deadline will be heard only in exceptional cases as determined by the dean of the college in which the appealed course grade occurred. To initiate a grade review, the student should request in writing to the department chair a review of the final course grade.

Grades. Letters are used to designate the quality of student academic achievement.

Grade of *I* (Incomplete). The grade of *I* is assigned *at the discretion of the instructor* when a student who is otherwise passing has not, due to circumstances beyond his/her control, completed all the work in the course. The missing work must be completed by the deadline specified by the instructor or during the next semester (fall or spring) in residence, but no later than 12 months after the term in which the *I* was assigned, whichever comes first. If the *I* is not removed during the specified time, a grade of *F*, *U* or *N* as appropriate is automatically assigned. *The grade of I cannot be removed by enrolling again in the same course.*

Grade of *IP* (In Progress). The grade of *IP* is based on coursework for courses that extend over more than one semester. For example, a course that requires enrollment for two consecutive semesters would be eligible for an *IP* grade in the first term (i.e., Graduate Thesis, Undergraduate Senior Project, etc.) The grade in the second term is also awarded for the course in the first semester. A grade of IP should not be given for coursework to be completed in one given term. It cannot be substituted for a grade of *I*. The IP grade expires after six years, and if no final grade has been awarded by that time, the *IP* grade will default to a grade of *N* (no credit).

Grade of *W* (Withdrawal or Drop). No grade will be given for a course dropped on or before the last day to drop a course without record. After this period a student who is permitted to drop or withdraw from a course will receive a grade of *W*. Only students with such extenuating circumstances as serious illness will be permitted to drop a course after the sixth week of classes in the semester or to withdraw from all courses during the last two weeks of classes in the semester. Unsatisfactory academic performance itself is not an extenuating circumstance. The date of withdrawal is determined when the withdrawal form is accepted by the Registrar's Office.

Pass/No Credit Option. Every student will be permitted during his/her *undergraduate* years to select a total of four courses in which he/she will be evaluated on a pass/no credit basis. Only one such course may be selected during an academic year. Every course in the University is offered on this basis *except* when taken by a student for departmental credit toward his/her major or minor or to satisfy University General Education (COGE) requirements. Courses completed with the grade of Honors or Pass will count toward graduation, but they will not be considered in the computation of the grade point average.

This option is designed to encourage curiosity, exploration, and experimentation in areas where a student has strong interest but little or no previous experience. **Note:** Courses designated by the faculty to be graded only on a *Pass/No Credit* basis are not counted as part of this option. The student must declare his/her intention to take a *Pass/No Credit* option by the end of the eighth instructional day in the semester.

Grades for General Education Courses. A course taken to satisfy a General Education requirement must be graded *A, B, C, D, F* unless it is offered only with *Pass/No Credit* grading. The *Pass/No Credit* Option described above cannot be applied to General Education courses.

Repeated Courses. *Courses listed as "May be repeated for credit" are **not** subject to the following regulations for repeated courses.* A student who has received a grade of *C, H, P* or better in a course may repeat that course only with the prior approval of the student's advisor, department chair, and dean. A student may receive credit for a course one time only unless the course description specifies that it "may be repeated for credit."

Progression Requirement. On April 16, 1998, the Faculty Council voted to rescind the progression policy (Course Exclusion Policy) in its entirety, effective immediately. Therefore, neither new students nor continuing students are now subject to any progression requirement.

Repeating a Course. On April 16, 1998, the Faculty Council voted to establish a single course repeat policy for undergraduate students, effective immediately, but with a grace period extending to August 15, 1999, for continuing students. Under the new course repeat policy, each grade earned in a repeated course is computed into the grade point average.

Grade Point Average. The grade point average for an undergraduate student is determined by multiplying the number of grade points for each grade by the number of semester hours credit received in that course, adding all accumulated grade points together, and then dividing by the total number of semester hours the student has attempted, except those for which the student received a grade of *I, W, H, P, AU*, or *N*. In computing the grade point average, only those credits attempted at UNC Charlotte or through the Charlotte Area Educational Consortium are included.

Grade Point Deficit. The grade point deficit is the number of additional grade points required to bring a student's cumulative grade point average up to 2.0.

UNDERGRADUATE GRADES

Letter	Meaning	Grade Points Per Semester Hour
A	Excellent	4
B	Good	3
C	Fair	2
D	Passing	1
F	Failing	0
I	Incomplete	*
IP	In Progress	*
W	Withdrawal	*
AU	Audit	*
NR	No recognition given for audit	*

Letter	Meaning	Grade Points Per Semester Hour
	Cooperative Education	
S	Satisfactory	*
U	Unsatisfactory	*
	Pass/No Credit	
H	Honors	*
P	Passing	*
N	No Credit	*

** Not used in computation of grade point average*

GPA Calculation / Grade Point Deficit. GPA is calculated by dividing quality points (QPTS) by quality hours (QHRS).

QPTS are determined by multiplying the number of quality points for each grade (A = 4, B = 3, C = 2, D = 1, F = 0) by the number of semester hours credit associated with that course.

QHRS are the total number of semester hours the student has attempted, except for those for which a grade of *I, W, P,* AU, or N is recorded.

GRADE POINT DEFICIT is the difference between the number of quality points a student has eamed and the number necessary to yield a GPA of 2.00. (Number necessary to yield a GPA of 2.00 is equal to 2 times the number of QHRS.)

Example of GPA Calculation / Grade Point Deficit

	GRD	QHRS	QPTS
ENGL 1101	B	3	9
MATH 1100	C	3	6
ESCI 1101	D	4	4
SEM. TOTALS		10	19

GPA = 19/10 = 1.90
QPTS necessary for 2.00 is 20 (2x10)
Grade point deficit = 1

Related topics: Probation / Suspension

ACADEMIC RECORDS AND TRANSCRIPTS

The Registrar is responsible for maintaining the official academic records for all students. Upon *written request by the student,* an official transcript of the academic record will be issued to the person or institution designated, provided that all the student's obligations to the University have been settled satisfactorily.

Each student is entitled to one transcript without cost, regardless of how early in his/her academic career the request is made. A fee of $3 per copy must accompany subsequent requests. Requests should reach the Registrar's Office at least one week before the date the transcript is needed.

FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT (FERPA) NOTIFICATION

The Family Educational Rights and Privacy Act (FERPA) affords students certain rights with respect to their education records. They are:

1. The right to inspect and review the student's education records within 45 days of the day the University receives a request for access.

Students should submit to the Registrar, dean, head of the academic department, or other appropriate official written requests that identify the record(s) they wish to inspect. The University official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the

University official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.

2. The right to request amendment of the student's education records that the student believes are inaccurate or misleading.

Students may ask the University to amend a record that they believe is inaccurate or misleading. They should write the University official responsible for the record, clearly identify the part of the record they want changed, and specify why it is inaccurate or misleading.

If the University decides not to amend the record as requested by the student, the University will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.

3. The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent.

One exception that permits disclosure without consent is disclosure to school officials with legitimate educational interests. A school official is a person employed by the University in an administrative, supervisory, academic or research, or support staff position (including law enforcement unit personnel and health staff); a person or company with whom the University has contracted (such as an attorney, auditor, or collection agent); a person serving on the Board of Trustees; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his or her tasks.

A school official has legitimate educational interest if the official needs to review an education record in order to fulfill his her professional responsibility.

4. The right to file a complaint with the U.S. Department of Education concerning alleged failures by UNC Charlotte to comply with the requirements of FERPA. The name and address of the Office that administers FERPA is: Family Policy Compliance Office, U.S. Department of Education, 600 Independence Avenue, SW, Washington, DC 20202.

UNC Charlotte intends to comply fully with these requirements. Policy Statement No. 69, "The Privacy of Educational Records," explains the procedures for compliance. Students may obtain copies of the policy in the Office of the Registrar or http://www.uncc/edu/unccatty/policy/state/, and copies of the policy statement are available for inspection in the offices of each dean and department chair. The policy includes a list of the locations of all education records maintained by the institution.

The following categories of personally identifiable information about students have been designated as public or "directory" information that may be disclosed for any purpose without student consent: name, local and permanent address, telephone number, email address, date and place of birth, class, major field of study, dates of attendance, degrees and awards (including scholarships) received, participation in officially recognized activities and sports, and weight and height of members of an athletic team.

Currently enrolled students may withhold disclosure of information in any category by completing the appropriate form available in the Office of the Registrar. Written requests for non-disclosure will be honored for a maximum of one year, and all such requests will expire on the following August 31. UNC Charlotte assumes that failure to complete the request indicates approval for disclosure.

All questions concerning this policy on educational records may be directed to the attention of the Registrar.

ACADEMIC HONORS

Chancellor's List. The Chancellor's List recognizes undergraduate students with outstanding records of academic performance. To qualify for the Chancellor's List during the fall or spring semester, a full-time student must earn a grade point average of at least 3.8 in 12 or more semester hours of credit graded *A, B,* or *C,* with no grade less than *C.* A part-time student must earn a combined fall and spring grade point average of at least 3.8 in 12 or more semester hours of credit graded *A, B,* or *C,* with no grade less than *C.* To qualify for the Chancellor's List as a part-time student, a student must enroll on a part-time basis in both fall and spring semesters in the same academic year. Students who receive the grade of *AU, H,* or *P* are not excluded from recognition as long as 12 hours are completed with *A, B,* or *C.* Students who receive the grade of *D, F, I, NR* or *N* are not eligible for recognition.

Dean's List. The Dean's List recognizes undergraduate students who earn a grade point average of at least 3.4 and not more than 3.79 and meet all other criteria as described for the Chancellor's List.

Commencement Marshals. At each commencement ceremony, the University Honors the juniors with the highest grade point averages by inviting them to serve as the marshals who lead the processions of graduates, faculty members, and the platform party. To select students for this honor, the University considers juniors who have completed 75 hours of degree work, enrolled full-time (12 or more hours per semester) during the two most recent semesters, and are able to attend the ceremony.

Graduation With Distinction. Each of the undergraduate degrees is awarded *Summa Cum Laude* when the graduating student's cumulative grade point average is 4.0, *Magna Cum Laude* when it is at least 3.8 but less than 4.0, and *Cum Laude* when it is 3.4 or more but less than 3.8. To be eligible to graduate with distinction, a student must have a grade point average computed on at least 48 semester hours of credit completed in residence at UNC Charlotte.

REQUIREMENTS FOR CONTINUED ENROLLMENT

Good Academic Standing. An undergraduate student must maintain a cumulative grade point average of 2.0 or above at UNC Charlotte to remain in good academic standing.

Academic Probation. An undergraduate student who has a grade point deficit between one and 13 is placed on academic probation, and this is noted on the student's academic record and grade report.

Academic Suspension. A student is suspended when either of the following apply: (1) the student has a grade point deficit of 14 or more **OR** (2) the student fails to achieve good standing by the end of two successive semesters on probation (excluding summer sessions).

However, a student will not be suspended:

(1) who was in good standing at the end of the most recent regular semester (excluding summer sessions); **OR**
(2) who is finishing the first regular semester of enrollment (excluding summer sessions) at UNC Charlotte; **OR**
(3) who has a 2.5 GPA for the current semester (excluding summer sessions); **OR**
(4) who is readmitted after a break in UNC Charlotte enrollment of two calendar years or more.

Exception for Summer Enrollment. Students who are on academic suspension are permitted to enroll in summer session classes. They are not eligible to continue enrollment in the fall and spring semesters until they have applied and been approved for readmission.

REQUIREMENTS FOR READMISSION AFTER ACADEMIC SUSPENSION OR TERMINATION

An undergraduate student under suspension must satisfy the admission requirements as stated elsewhere in this *Catalog* to qualify for readmission.

In addition, an undergraduate student who has been suspended for failure to satisfy the requirements for continued enrollment stated above will be ineligible for readmission until (1) an appeal is accepted through the Registrar's Office with the approval of the Department in which the student would major; (2) he/she meets the requirements for continued enrollment; (3) he/she earns an associate of arts (A.A.) degree from an accredited two-year institution; or (4) the student elects to use the Two-Year-Rule. A suspended student who originally entered UNC Charlotte the fall of 1993 or later is eligible for one readmission to the University (but not to a specific program) using either the A.A. Degree Rule or the Two-Year Rule. *(See Readmission of Former Students in this Catalog.) If readmitted, the student is expected to satisfy the requirements for continued enrollment.*

Note. Readmission after suspension is not automatic. An application for readmission must be made and approved. Included in the approval must be an acceptance from the Department in which the student would major. *(See the section on Readmission of Former Students elsewhere in this catalog.)*

APPEAL PROCEDURES

Undergraduate students may appeal their suspension by submitting a written statement to the Office of the Registrar.

Other grievances relating to academic status are to be addressed by the college where the grievance arises or, if no particular college is appropriate, by the Assistant Vice Chancellor for Enrollment Management. Written procedures are available from the dean of each college and the Registrar's Office.

Time Limits on Appeals to the Board of Trustees, President, or Board of Governors

The Code of the University of North Carolina provides that under certain conditions a grievant may appeal from a chancellor's disposition of a grievance. The line of appeal is to the president or Board of Trustees. The line of appeal from a decision of the president or the Board of Trustees is to the Board of Governors. *Board of Governors regulations set time limits for giving notice of any such appeal.*

Any appeal from a decision by the chancellor, the Board of Trustees, or the president which is allowed under Board of Governors regulations must be filed within ten (10) days after the grievant receives a decision on the appeal from that officer or body. The grievant's notice of appeal must be in writing, but need merely state, "I wish to appeal from the chancellor's (or Board of Trustees) decision in my case." The officer or body to whom the appeal is directed will thereafter advise of the schedule for perfecting and processing the appeal.

University of North Carolina regulations provide that certain appeals from the disposition of grievances by the chancellor must be addressed to the president, while others must be addressed to the Board of Trustees. Whether a grievant's notice of appeal to the next level from a decision by the chancellor should be sent to the president or to the Board of Trustees will be noted in the chancellor's written decision.

Notice of an appeal to the president should be addressed to the president with a copy to the chancellor. Notice of an appeal to the Board of Trustees should be addressed to the chancellor for forwarding to the Board of Trustees. Notice of appeal to the Board of Governors should be addressed to the president for forwarding to the Board of Governors.

The full text of the Board of Governors regulation concerning time limits on appeals may be found on-line as Item III-J-7 in "The Administrative Manual of the University of North Carolina" at the following: http://www.ga.unc.edu/publications/admin_manual/.

TRANSFER CREDIT AND ADVANCED ACADEMIC STANDING

Evaluation of transfer credits, advanced standing, CLEP, AP, and IB are coordinated through the Office of Undergraduate Admissions. Prospective students who desire further information about policies and procedures for awarding credit should contact the Undergraduate Admissions Office.

UNC Charlotte will accept appropriate undergraduate credits earned through AP, IB, CLEP, correspondence courses, extension courses, armed forces service schools, and college-level courses completed prior to graduation from high school. In addition, UNC Charlotte will accept or

transfer appropriate undergraduate and graduate credits earned at another accredited institution or through credit by examination. Credit toward a degree is not awarded for Continuing Education Units (CEUs).

Advanced Placement Course Credit (AP). The University will accept appropriate undergraduate credits earned through Advanced Placement Program Tests completed prior to graduation from high school. Students must request that official Advanced Placement test results be sent directly to the Office of Undergraduate Admissions for evaluation (UNC Charlotte code-5105). Prospective students who desire further information about policies and procedures for awarding credit should contact the Office of Undergraduate Admissions. View score requirements at http://www.uncc.edu/admissions.

International Baccalaureate Program (IB). The University will award credit for subjects in which students score appropriate scores on the IB examinations. Contact the Office of Undergraduate Admissions for further information. View score requirements at http://www.uncc.edu/admissions.

College Level Examination Program (CLEP) General Examination. An undergraduate student may receive up to 23 semester hours of elective credit.

Subject Matter Examinations. Credit may be awarded for subject matter examinations listed below at the levels recommended in the current edition of *CLEP Scores: Interpretation and Use*:

Business
Information Systems and Computer Applications
Principles of Management
Introductory Accounting
Introductory Business Law
Principles of Marketing

Education
Introduction to Educational Psychology
Human Growth and Development

Foreign Language
College French I & II
College German I & II
College Spanish I & II

Humanities
American Literature
Analysis & Interpretation of Literature
College Composition
English Literature

Mathematics
Calculus w/Elementary Functions
College Algebra
College Algebra-Trigonometry
Trigonometry

Sciences
General Biology
General Chemistry

Social Sciences
American Government
American History I & II
Introduction to Psychology
Introduction to Macroeconomics
Introduction to Microeconomics
Introduction to Sociology
Western Civilization I & II

CLEP credit will be awarded according to UNC Charlotte policy in place at the time of evaluation. View score requirements at http://www.uncc.edu/admissions.

The amount of CLEP credit that is applicable to a specific degree program is determined by the Department offering the program.

Transfer Credit from Other Institutions. Transcripts are evaluated in the Admissions Office and the results are provided to the applicant and to the major department/ college. Determining the applicability of transferred credits to major or program requirements is the responsibility of the Department Chairperson or Program Director. General rules governing transfer credit:

1. Only courses taken at a *regionally* accredited institution will be considered for transfer credit.
2. *Provisional* transfer credit may be granted for study at foreign institutions or U.S. institutions that are not regionally accredited, but must be validated by 30 semester hours of successful performance in residence at UNC Charlotte.
3. Courses for which credit is accepted must be appropriate for approved University programs and curricula in which the student is enrolled.
4. Any course from an accredited institution that transfers as a course on the General Education list carrying the "IR" (initiation date retroactive indefinitely) notation will satisfy the goals for which the UNC Charlotte course is applicable. All restrictions that apply to UNC Charlotte courses apply to transfer courses.
5. No credit below *C* level will be accepted; grade points and averages do *not* transfer.
6. Transfer credit is awarded only upon receipt in the UNC Charlotte Admissions Office of an official transcript from the institution where the credit was earned.

Credit for Military Training. The University will approve academic credit for military training equivalent to UNC Charlotte courses required for the students' major, minor, or General Education requirements and up to three hours of elective credit. The military training credit must be part of the student's first 30 hours at UNC Charlotte and must be approved by the student's major Department Chair, College Dean and the Department that offers the course.

Documentation of the training, such as a license of completion or notation on the student's DD Form 214, is required. The same requirements apply to transfer or military training credit approved by another institution. Contact the Registrar's Office for further information.

Correspondence and Extension Courses. A limited number of correspondence and/or extension courses may be transferred.

Credit from Two-Year Institutions. The University accepts a maximum of 64 semester hours of credit from two-year institutions for undergraduate students.

Transient Study. Courses undertaken by UNC Charlotte undergraduate degree students at other accredited institutions may be transferred to the University subject to the following regulations:

1. The University is not obligated to accept any credit from another institution unless the student has obtained the *prior approval* of the dean of the college in which he/she is enrolled. A Permit for Transient Study form should be completed and filed in the UNC Charlotte Registrar's Office prior to enrollment at another institution.
2. No credit will be accepted for courses below *C* level for undergraduate students or below *B* level for graduate students.
3. The student must request that an official transcript be mailed to the Registrar's Office upon completion of the course. A form for this purpose is available in the Registrar's Office.

Credit by Examination. A student currently enrolled at UNC Charlotte may pass a specially-prepared challenge examination and receive credit for a University course without having to do the normal course work. The student contacts the Chair of the Department in which credit is sought to request administration of an examination. Since it may not be appropriate to award credit by examination for some courses, the decision to offer an examination is that of the Department. If the Chair authorizes an examination, the student is instructed to pay the required fee for credit by examination and to bring the receipt of payment to the examination. Hours earned through credit by examination will be indicated on the transcript, but no grade points will be awarded. Hours attempted will be assigned equal to the hours earned. Failure on such an examination will incur no grade point penalty or hours attempted. A department may allow a student to take examinations for courses not offered at UNC Charlotte, if it deems it appropriate to do so. No student may challenge a course for which either a passing or failing grade has been received at UNC Charlotte.

GRADUATION

Application for the Degree. Each student should make application for his/her degree no later than the filing date specified in the University calendar. The application may be submitted through the Registrar's web page. The fee for graduation is $35. Degrees are awarded at commencement exercises held at the end of the Fall and Spring semesters; however, the diploma and transcript will reflect the term in which all requirements were completed.

Students completing their degree requirements in May, participate in the May ceremony. Students completing degrees in a summer term as well as those completing in December, participate in the December ceremony.

Teacher Licensure. Students who have completed degree requirements and obtained passing scores on appropriate exit tests (e.g., Principles of Teaching and Learning, Praxis II Subject Assessments) must apply for licensure through the Office of Student Academic Services (OSAS) in the College of Education. OSAS will process and submit application packets including Praxis scores, final transcripts, and required fees to the North Carolina Department of Public Instruction (NCDPI). Licenses are mailed directly to applicants by NCDPI.

BACCALAUREATE DEGREE REQUIREMENTS

Credit Hours. The baccalaureate degrees require completion of 120-128 semester hours of credit, including all requirements for a major field of study. Specific requirements for degrees and programs are presented in the *Courses of Study* section of this *Catalog*.

Residence. A student must earn the last 25% of baccalaureate degree requirements at UNC Charlotte, including the last 12 semester hours of work in the major field and at least six hours of any minor field of study. Exceptions to these hour provisions may be made upon the recommendation of the student's major department and with the approval of the dean of the college of the student's major.

Coursework taken in residence shall be construed to mean work offered by UNC Charlotte and taken in courses on the UNC Charlotte campus or at an approved off-campus center. Credit earned by challenge examinations or other advanced standing examinations cannot be used to meet the residence requirement.

Grade Point Averages. To graduate, a student must have an overall grade point average of at least 2.0 and a grade point average of at least 2.0 in the major and in any minor. Some programs require a higher grade point average. See the *Courses of Study* section of this *Catalog*.

Course Levels. Junior and senior students are required to have the consent of the major department to enroll in any course below the 3000 level not required in their degree program.

General Education. All baccalaureate degrees at UNC Charlotte include a common set of General Education requirements designed to develop skills, competencies, and learning capacities to achieve the **Goals of UNC Charlotte Education.**

Requests for Exceptions. Requests for exceptions to any aspects of the General Education requirements for individual students must be approved by the Associate Dean of Arts and Sciences. Such exceptions may be requested by completing the Special Request Form, including recommendations of approval by the student's Advisor, Chairperson and Dean, and submitting it to the Registrar's Office.

GOALS OF UNC CHARLOTTE GENERAL EDUCATION, GENERAL EDUCATION REQUIREMENTS AND APPROVED COURSES

To meet the Goals of UNC Charlotte General Education, students engage in a program to develop an understanding of and appreciation for science and technology; literature and the arts; the individual, society and culture; and the interrelationships among these.

Designation of Approved Courses. The courses that satisfy the Goals of UNC Charlotte General Education are listed below and also identified in the course descriptions. In addition, a specific section of a course may be designated to meet a goal. The **Schedule of Classes** published for each term contains a listing of courses and sections that satisfy specific goals. Courses approved to meet goals are designated by the following symbols:

A Arts and Ideas
C Individual, Society, and Culture
L Literature or Ideas
O Oral Communication
P Problem Solving
S Science and Technology
V Values
W Writing Intensive
X Cross-Cultural/International Perspective
N Non-lab Science Courses transferred from other institutions and approved to meet the New Science Requirement

Courses Approved to Satisfy Two Goals. Generally, a student may use a course to satisfy *only one Goal* even though the course qualifies to satisfy more than one Goal. The only *exceptions to this restriction* concern Values (V), Oral Communications (O), and Writing Intensive (W). Courses approved to meet the Values, Oral Communications or Writing Intensive requirements also can be approved to satisfy another goal. However, a student may not use a course to satisfy more than two goals at the same time even if the course is approved to satisfy more than two goals.

Transfer of General Education Equivalent Courses. Students may meet the Goals of UNC Charlotte General Education with approved equivalent courses transferred from other institutions. There is no limit to the number of approved General Education equivalent courses that can be applied to General Education requirements when the number of credit hours assigned to the transferred courses are equal to or greater than the number of credit hours assigned to equivalent UNC Charlotte courses. However, in some instances, the number of credit hours assigned to a General Education equivalent course is fewer than the number of credit hours assigned to the UNC Charlotte course. A maximum of two of these General Education equivalent courses can be applied to fulfill appropriate General Education goals, provided that the credit hours assigned to each of the two transfer courses are only one credit hour less than the number of credit hours assigned to the equivalent UNC Charlotte course. This policy does not reduce the total number of credit hours required for the degree; students must complete the number of hours specified for the degree by the Department or program.

Grading Policy for General Education. A course taken to satisfy a General Education requirement must be graded *A, B, C, D, F,* unless it is offered only with *Pass/No Credit* grading.

GOAL I. COMMUNICATION

UNC Charlotte graduates should be able to:

- Effectively send and receive in English written and oral messages in different situations for a variety of audiences, purposes and subjects.
- Communicate effectively in a symbolic system of language (other than English) having written, oral or visual components.

Requirements/Approved Courses:

- **English 1101 and 1102.** Entering Freshmen selected by the Rhetoric and Writing Committee to do so may satisfy this requirement with credit for ENGL 1103. Transfer Students may fulfill the requirement with one of the following: (1) transferred equivalent courses; (2) exemption from first year writing (without credit) at another college or university; (3) 64 or more transferred credit hours; or (4) an A.A., A.F.A., A.S., or bachelor's degree from a regionally accredited institution. Transfer students who have fulfilled only part of the requirement may complete it with either ENGL 1101 or 1102.

- **Oral Communication (O) course:** entering students beginning Fall 1998 must complete at least one course. **Approved courses** are listed in the **Schedule of Classes** for each term and include but are not limited to:

AAAS 3290
AERO 1101L, 1102L, 2101L, 2102L, 3101L, 3102L 3201L, 3202L
ANTH 4601
ARTA 3600
BIOL 4600, 4601
CEGR 2154
CHEM 4695, 4696
CHFD 3410, 3619
CJUS 3130, 3132, 4162
COMM 1101
DATH 1100
ECGR 2252, 3157
ELED 3420
ESCI 4600
ETCE 3642
ETEE 3641
ETFS 3611, 4243
ETGR 3643
ETMF 3490
FORL 3160
FREN 3201
GEOG 2165
GERM 3160, 3201
HIST 2100
HPKD 4660
MATH 3689
MDLG 3430
MEGR 3256, 3356
MUSC 3170
PHIL 3207, 3221
PHYS 3282
POLS 2000, 3110, 3163
PSYC 3613, 3619, 3625, 3630, 3650, 3660, 4613, 4619, 4625, 4630, 4650, 4655, 4660, 4670
RELS 4600
SOCY 4263
SOWK 3683, 3685
SPAN 2205

SPED 3470
Other courses designated O

- **Writing Intensive (W) courses:** six semester hours, including three semester hours at the 3000 level or above and at least three semester hours outside the student's major. **Approved (W) courses** are listed in the **Schedule of Classes** for each term and include but are not limited to:
  AAAS 2206, 2215, 3692
  ANTH 2121, 3122, 3132, 4601
  ARCH 2601
  ARSC 1101, 3480
  ARTA 3101, 3600
  BIOL 3202, 3215, 4111, 4144, 4221, 4234, 4244, 4701
  CEGR 3153, 3155, 3255, 3258
  CHEM 3695, 4695, 4696
  CJUS 3130, 3210
  DANC 3110
  ECGR 2155, 2156, 3156, 3253, 3254
  (four labs satisfy one W goal)
  ECON 4177
  ENGL 2014, 2015, 2105, 2108, 2116, 2126, 3100, 3110, 3200, 4204, 4400
  Engineering Technology Majors:
  (three labs satisfy one W goal)
  ETCE 3150, 3151, 3154, 3252, 3253, 3642
  ETEE 3153, 3156, 3255, 3257, 3641
  ETFS 3611, 4243
  ETGR 3071, 3643
  ETME 3151, 3152, 3251, 3252
  ETMF 3251
  FINN 3272
  FORL 3050, 3160
  FREN 2209
  GEOG 3115, 3215, 3265
  GEOL 3124
  GERM 3160
  GRNT 3600
  HIST 3150, 3215, 3241, 3242, 3700, 4000, 4001, 4002
  HONR 1702, 3702
  HPKD 4660
  INTL 4601
  ITCS 3688
  JAPN 3209
  JOUR 2160
  MATH 3163
  MEGR 3152, 3171L, 3251
  MGMT 3160
  MUSC 3171
  NURS 3252
  PHIL 3207
  PHYS 3282, 3283
  POLS 3110, 3163, 4220, 4990
  PSYC 2102, 3125, 3613, 3619, 3625, 3630, 3660, 4613, 4619, 4625, 4630, 4650, 4655, 4660, 4670
  READ 3225, 3255
  RELS 1101, 1201, 2101, 3101, 3209, 3212, 3232, 4010, 4110, 4201, 4215, 4218, 4600
  SOCY 4168
  SOWK 3201
  SPAN 2009, 3009, 3019
  THEA 1101, 2218
  TRAN 3274
  WMST 3050-D01, 3102, 3220
  Other courses designated W

Consult the schedule of courses for other courses that are approved to meet Goal 1: Writing Intensive (W).

- **Foreign language proficiency through the 1102 or 1202 course level.** Proficiency may be certified by: (1) completion of any UNC Charlotte course in French, German, or Spanish course at the 1102 level or above; **OR** completion of any UNC Charlotte course at the 1202 level or above in Chinese, Greek, Hebrew, Italian, Japanese, Latin, Portuguese, or Russian; (2) transfer of an equivalent course from another college or university; (3) satisfactory performance on the UNC Charlotte Foreign Language Placement Exam or on an exam administered by another university and approved by the UNC Charlotte Department of Languages and Culture Studies; (4) presentation of an acceptable score on an approved test in foreign languages, such as AP or CLEP. American sign language may be used to meet this requirement. Students whose native language is not English may satisfy the foreign language requirement by completing ENGL 1102 and showing proof of their knowledge of a language not taught at UNC Charlotte.

Bypass credit: In order to test out of the University's General Education requirement in foreign languages, students must demonstrate 1102-level competence by scoring 400 or above on one of the Placement Exams. Students who score below 400 on the aforementioned exams and complete FREN/GERM/SPAN 1102 or 2201 with a grade of A or B will automatically receive 3 hours of credit for the preceding course. For example, if you complete 1102 with an A or B, you will receive 3 hours of credit for 1101. Students who pass the Placement Exam in a given language may not thereafter receive credit for a 1000-level class in that language unless they are currently enrolled in 1100, 1101, or 1102. In that case they will be allowed to complete the first-year sequence. Students who pass the Placement Exam but are not currently enrolled in a first-year class may earn 3 hours of bypass credit for 1102 by completing 2201 with a grade of A or B. The Department of Languages and Culture Studies does not award bypass credit for 1100 to students who take 1101.

Note: All students with certified learning disabilities or with impaired sensory, manual or speaking skills who require special assistance regarding the foreign language requirement should contact the Office of Disability Services. All other questions regarding the foreign language requirement should be directed to the Department of Languages and Culture Studies.

GOAL II. PROBLEM SOLVING

UNC Charlotte graduates should possess the analytical abilities necessary to:

- Sense, discover, and define problems.
- Recognize and understand the use of qualitative and quantitative methods for solving problems and select those appropriate for specific problems.
- Collect and order information.
- See the relationships among phenomena.
- Assess the probable implications of a solution.
- Decide on an appropriate solution.
- Evaluate the problem-solving process.

Requirements/Approved Courses. Problem solving is a goal of all courses taught in the University and it is integrated into all the other Goals of UNC Charlotte Education. Additional requirements:

- **Analytical and quantitative approaches to Goal II problem solving (P) (select one):**

  Six semester hours of mathematics (including STAT/OPRS) **OR**

  Three semester hours of mathematics (including STAT/OPRS) and Logic, PHIL 2105 (3) **OR**

  Three semester hours of mathematics (including STAT/OPRS) and CSCI 1100 or CSCI 1201 and CSCI 1201L.

  Engineering Technology majors should consult their department about using EGET 3171, EGET 3273, or ELET 3124 toward this requirement.

- **Research methods and problem-solving coursework appropriate to the major discipline or field study.** (This is specified by the student's major department.)

GOAL III. UNDERSTANDING VALUES

UNC Charlotte graduates should confront the dynamics of personal and community interrelationships by:

- Recognizing the assumptions, beliefs, and values underlying one's own conduct.
- Recognizing the historical context and assessing the consistency of one's own values.
- Recognizing differences in the assumptions, beliefs, and values underlying the conduct of others.
- Recognizing the implications of decisions made on the basis of values.

Requirements/Approved Courses. Aspects of this goal are addressed by many courses throughout the curriculum and by extracurricular activities offered on and off campus. Specific academic requirements:

- **Values (V) courses:** three semester hours. **Approved courses** are listed in the **Schedule of Classes** for each term and include but are not limited to:

  AAAS 3150, 3101
  AERO 3202
  ANTH 1101
  ARSC 3480
  CJUS 2102
  ENGL 3110
  ESCI 2101
  GEOG 1101, 3265
  HIST 1100, 2000, 2111, 2150, 2151
  HONR 3701
  ITCS 3688
  PHIL 2165, 2175, 3219, 3221, 3228, 3231
  POLS 1170, 3070, 3115, 3137, 3171, 3173, 3174, 3175
  RELS 1101, 1110, 1201, 2101, 2104, 2105, 3111, 3150, 3232, 3233, 4109, 4110, 4201
  SOCY 1101, 2112, 2132
  WMST 1101, 3050-B01, 3212, 3220
  Other courses designated V

Consult the schedule of courses for other courses that are approved to meet Goal III: Values (V).

GOAL IV. UNDERSTANDING SCIENCE AND TECHNOLOGY

UNC Charlotte graduates should:

- Be conversant with and have had experience in the aims, methods, and principles of scientific and technological endeavors.
- Understand the nature and limitations of the world view given us by sciences.
- Understand the effects of technology in shaping the physical and human environments.

Requirements/Approved Courses: Students are required to **complete one of the following options:**

Option A. *Three science (S) courses, including at least one course from the Life Sciences and at least one course from the Physical Sciences. One course must have a laboratory and the laboratory course must be from outside of the student's major.*

Life Sciences
Biology (BIOL 1110 or BIOL1110 + Lab) or BIOL 1273 or BIOL 1273 + Lab)
Physical Anthropology (ANTH 2141 + Lab) **OR** Psychology (PSYC 1101 + Lab)

Physical Sciences
Chemistry (CHEM 1111, or 1203 (formerly 1103), or 1251 (formerly 1101), **OR** CHEM 1111 + Lab, or 1203 + Lab, or 1251 + Lab
Engineering Technology (ELET 3112 + ELET 3156) *(ET majors only)*
Geology (GEOL 1200, or GEOL 1200 + Lab)
Physical Geography (ESCI 1101, or ESCI 1101 + Lab)

Physics/Astronomy (PHYS 1101 + Lab, or PHYS 2101 + Lab, or PHYS 2102 + Lab, or PHYS 1130 + Lab, or PHYS

1130, **or** PHYS 3000

Continuing students who entered UNC Charlotte before Fall 1999 may elect the new Option A above, but they must also then abide by all the other requirements in the current catalog, including those of their major.

Students who entered UNC Charlotte before Fall 1993 may substitute one science (S) course with laboratory from three of the following six groups: Biology (BIOL 1110 or 2111); Chemistry (CHEM 1111, 1203 or 1251); Earth Science-Geography (ESCI 1101); Earth Science-Geology (GEOL 1200); Physics/Astronomy (PHYS 1101, 1130, 2101, or 2102); Psychology, Physical Anthropology (PSYC 1101 or ANTH 2141). Engineering Technology students may substitute ELET 3112 and 3156 for one of the three required groups.

Option B. *One of the following approved two-semester sequences of* ***Science (S)*** *courses with laboratories:*

BIOL 1110 + 1110L and 1115 + 1115K
BIOL 1273 + 1273L and 1274 + 1274L
CHEM 1111 + 1111L and 11112 + 1112L
CHEM 1251 + 1251L and 1252 + 1252L
CHEM 1203 + 1203L and 1204 + 1204L
GEOL 1200 + 1200L and 1210
PHYS 1101 + 1101L and 1102 + 1102L
PHYS 2101 + 2101L and 2102 + 2102L

GOAL V. UNDERSTANDING THE ARTS, LITERATURE, AND IDEAS

UNC Charlotte graduates should:

- Be conversant with, and have had experience in, the aims and methods of the great intellectual, spiritual, literary, and artistic expressions that have shaped the development of the human imagination.
- Understand the importance that abstract ideas and artistic images have in the process of self understanding and in the shaping of society.

Requirements/Approved Courses:

- **Literature or Ideas (L) courses:** three semester hours. **Approved courses** are listed in the **Schedule of Classes** for each term and include but are not limited to:
  AAAS 2301
  AMST 3100
  ENGL 2090, 2101, 2102, 2103, 2104, 2105, 2111, 2112, 2301, 3103, 3104
  FORL 3050
  GERM 3050
  HIST 1161, 2200, 3101, 3102, 3106, 3150, 3201
  HONR 1701
  PHIL 2101, 3243
  RELS 1101, 1120, 2101, 2102, 2104, 2105, 3101, 3209, 3233, 4010, 4110, 4218
  SPAN 2009, 3009, 3019
  WMST 3220, 4228
  Other courses designated L

Consult the schedule of courses for other courses that are approved to meet Goal V: Literature or Ideas (L).

- **Arts and Ideas (A) courses:** three semester hours. **Approved courses** are listed in the **Schedule of Classes** for each term and include but are not limited to:
  AAAS 2206
  ANTH 3112
  ARCH 1100, 4211
  ARTA 1111, 1211, 1212, 2112, 2113, 3600
  DANC 1101, 3101, 3102
  ENGL 2090, 2106
  FORL 3160
  GEOG 1101
  GERM 3030, 3160
  HIST 1115, 3102, 3106, 3109
  HONR 2701
  MUSC 1132, 3170
  PHIL 3205, 3223, 3225
  POLS 3128
  RELS 3163, 3212, 4215
  THEA 1101, 3101, 3102
  Other courses designated A

Consult the schedule of courses for other courses that are approved to meet Goal V: Arts and Ideas (A).

GOAL VI. UNDERSTANDING THE INDIVIDUAL, SOCIETY, AND CULTURE

UNC Charlotte graduates should be able to:

- Understand how institutions operate with societies in both contemporary and historical perspectives.
- Understand internal and external influences that promote and inhibit human action.
- Understand the patterns of change that individuals experience at various points in life.
- Recognize the complex, integrated, and dynamic nature of human behavior and human experience.
- Understand the commonalties, differences, and interdependence among and within societies of the world.

Requirements/Approved Courses: Six semester hours including at least three semester hours with a cross-cultural and/or international emphasis **(X).**

- **Individual, Society and Culture (C) approved courses** are listed in the **Schedule of Classes** for each term and include but are not limited to:
  AAAS 2201
  AMST 3100, 3210
  CJUS 1100
  ECON 1201, 1202
  EDUC 2100, 2150
  ENGL 2101, 2102
  GEOG 1105, 2165
  GRNT 2100, 2124
  HIST 1160, 1161, 2111, 2260, 3148, 3216, 3241
  HONR 3702
  PHIL 3226
  POLS 1110, 3177
  PSYC 1101, 2120, 2124, 3116, 3130, 3135, 3151
  RELS 1201, 2108

SOCY 1101, 2112, 2132
WMST 1101, 3212, 4101, 4228
Other courses designated C

Consult the schedule of courses for other courses that are approved to meet Goal VI: Individual, Society and Culture (C).

Cross-Cultural and/or International Emphasis (X) approved courses are listed in the **Schedule of Classes** for each term and include but are not limited to:

AAAS 1100, 3150, 3101
AMST 2100
ANTH 1101, 2114, 2121, 3112, 3122, 3132, 4110
ARTA 2112, 2113
ENGL 2111, 2112, 3156, 4146
FREN 2209
GEOG 1101
GERM 3160
HIST 1100, 1115, 1120, 1121, 2206, 2207, 2210, 2211, 3109, 3148
HONR 1702
MKTG 3215
NURS 3252
POLS 1130, 1150
RELS 1110, 2102, 3111, 3150, 3163, 4201
SPAN 3009, 3019
WMST 3050-B01, 4228
Other courses designated X

Consult the schedule of courses for other courses that are approved to meet Goal VI: Cross Cultural and/or International Emphasis (X).

Study Abroad Option to meet Goal VI (X): Students enrolled in a degree program at UNC Charlotte may satisfy up to six (6) semester hours of the Goal VI (X) requirement through participation in a study-abroad program sponsored, or specifically approved, by the Office of International Programs. Upon successful completion of the approved study abroad program, credit to meet the cross-cultural requirement will be awarded based on the following guidelines:

Cross-cultural Requirement Met

8 weeks or longer of study abroad. Up to six semester hours, based on semester hours earned through study abroad. (Examples: 3 hours earned = 3 hours of the requirement met; 9 hours earned = 6 hours of the requirement met)

Less than 8 weeks. Up to three semester hours, based on semester hours earned through study abroad (Examples: 2 hours earned = 2 hours of the requirement met; 4 hours earned = 3 hours of the requirement met). An additional three hours (to a total of six hours) may also be approved by COGE (on the advice of the Office of International Programs) to satisfy the requirement if the program experience and/or content warrant.

Subject Area	Degree(s)	Minor	Teacher Licensure	Other
Accounting	BS MACC			Cooperative Education/ MBA Concentration
African-American Literature		•		
African-American and African Studies	BA	•		
Air Force Aerospace Studies (AFROTC)				
American Studies		•		
Anthropology	BA	•	See Social Studies	
Applied Mathematics	MS/PhD			
Applied Physics	MS			
Applied Statistics	MS			
Architecture	BA/BARCH MARCH			
Army ROTC (Military Science)				
Art	BA/BFA		•	Honors
Art Education	BA/BFA		•	
Art History		•		
Biology	BA/BS MA/MS/PhD	•	•	Honors/ Cooperative Education
Biology with option in Ecology/Environmental Biology	BS			
Biology with option in Medical Technology	BA			
Biotechnology		•		
Business Administration	BSBA/MBA			MBA Plus Certificate Honors/ Cooperative Education
Chemistry	BA/BS/MS	•	•	Honors
Chemistry with option in Biochemistry	BS			
Chemistry with option in Medical Technology	BA			
Child and Family Development	BA	•	Birth-Kindergarten Teacher Licensure	
Child and Family Studies	MEd		•	
Children's Literature		•		
Civil Engineering	BSCE MSCE			Cooperative Education/ Doctoral Studies*

Subject Area	Degree(s)	Minor	Teacher Licensure	Other
Civil Engineering Technology	BSET			Cooperative Education
Cognitive Science		•		
Communication Studies	BA	•		Graduate Certificate
Computer Science	BA/BS/MS	•		Cooperative Education Undergraduate Certificates in Computer Programming and Computer Architecture
Counseling, Community	MA		•	Graduate Certificate in Substance Abuse Counseling
Counseling, School	MA		•	
Criminal Justice	BA/MS	•		
Curriculum and Supervision	MEd		•	
Dance	BA	•	•	Honors
Dance Education	BA		•	
Earth Sciences	BA/BS	•	•	Cooperative Education
Economics	BA/MS	•	See Social Studies	Cooperative Education/ MBA Concentration Finance Concentration
Education See specific topics: Curriculum and Supervision, Educational Administration, Elementary Education, Middle Grades, Reading, Language, and Literacy, Middle Grades and Secondary Education, Special Education, Teaching English as a Second Language, Instructional Systems Technology			•	
Educational Administration School Administration Educational Leadership	MSA EdD		•	CAS**
Electrical Engineering	BSEE/MSEE PhD			Cooperative Education
Electrical Engineering Technology	BSET			Cooperative Education
Elementary Education	BA/MEd		•	
Engineering See specific topic areas: Civil Engineering, Computer Engineering, Electrical Engineering, Engineering Management, Mechanical Engineering	Baccalaureate, Master's, PhD			Cooperative Education
Engineering Management	MS			

Subject Area	Degree(s)	Minor	Teacher Licensure	Other
Engineering Technology See: Civil Engineering Technology, Electrical Engineering Technology, Fire Safety Engineering Technology, Manufacturing Engineering Technology, Mechanical Engineering Technology	BSET			Cooperative Education
English	BA/MA	•	•	Graduate Certificate in English Language Studies and Technical and Professional Writing
English Education	BA/MA		•	
Film Studies-Foreign		•		
Finance	BSBA			Cooperative Education/MBA Concentration
Fire Safety Engineering Technology	BSET			
French	BA	•	•	Certificate in Translating
Geography	BA/BS/MA	•	See Social Studies	Cooperative Education
Geology	BS			Cooperative Education
German	BA	•	•	Certificate in Translating
Gerontology	MA	•		Graduate Certificate
Health Administration	MHA			
Health Fitness	BS			
Health Promotion	MS			Athletic Training Endorsement Graduate Certificates in Clinical Exercise Physiology, Community Health, and Worksite Health Promotion
History	BA/MA	•	•	Honors
Industrial and Operations Management	BSBA			
Information Science		•		
Information Technology	MS/PhD			Graduate Certificates in Advanced Databases and Knowledge Discovery and Management of Information Technology
Information & Technology Management				MBA Concentration

Subject Area	Degree(s)	Minor	Teacher Licensure	Other
Instructional Systems Technology	MEd		•	
Interdisciplinary Health Studies		•		
International Business	BSBA			
International Studies	BA	•		
Japanese		•		
Journalism		•		
Judaic Studies		•		
Language & Culture Studies French, German, Russian or Spanish	BA	•	•	Certificate in Translating
Liberal Studies	MA			
Management	BSBA			MBA Concentration
Management Information Systems	BSBA			
Marketing	BSBA			MBA Concentration
Manufacturing Engineering Technology	BSET			Cooperative Education
Mathematics, Applied	MS/PhD			
Mathematics	BA/BS/MA	•	•	Honors/ Cooperative Education
Mathematics Education	MA		•	
Mechanical Engineering	BSME, MSME/PhD			Cooperative Education
Mechanical Engineering Technology	BSET			Cooperative Education
Middle Grades Education	BA		•	
Middle Grades and Secondary Education	MEd		•	
Military Science Area (Army ROTC)				
Museum Studies		•		
Music	BM	•	•	Honors
Music Education	BM		•	
Neuroscience Studies		•		
Nursing	BSN,MSN, MSN/MHA			Graduate Certificate in Nursing Anesthesia

Subject Area	Degree(s)	Minor	Teacher Licensure	Other
Operations Management	BSBA			
Operations Research		•		
Performing Arts Dance, Theater	BA	•	•	Honors
Philosophy	BA	•		
Physics	BA/BS	•		
Physics, Applied	MS			
Political Science (See also Public Administration)	BA	•	See Social Studies	
Psychology	BA/BS	•	•	Honors
Psychology, Clinical and Community	MA			
Psychology, Industrial and Organizational	MA			
Public Administration	MPA			
Reading, Language, and Literacy	MEd		•	
Reading Education	MEd		•	
Religious Studies	BA	•		
Russian		•		
School Administration	MSA		•	
Social Studies Anthropology, Economics, Geography, History, Political Science, Sociology (Contact the Coordinator of Licensure in the College of Education for more information.)			•	
Social Work	BSW/MSW	•		
Sociology	BA/MA	•	See Social Studies	
Spanish	BA	•	•	Certificate in Translating
Special Education: Cross-Categorical Disabilities Academically Gifted Behavioral-Emotional Disabilities Supported Employment and Transition Mental Disabilities Learning Disabilities Severe and Profound Disabilities	 MEd MEd MEd BA/MEd MEd MEd		 • • • • • •	 Graduate Certificate Graduate Certificate Graduate Certificate Graduate Certificate Graduate Certificate

Subject Area	Degree(s)	Minor	Teacher Licensure	Other
Statistics, Applied	MS			
Teaching English as a Second Language	MEd		•	
Technical and Professional Writing		•		Graduate Certificate
Theater	BA	•	•	Honors
Theater Education	BA		•	
University Honors				Honors
Urban Studies		•		
Western Antiquity & Classical Languages		•		
Women's Studies		•		

* The University of North Carolina at Charlotte participates in an interinstitutional degree program at the doctoral level: Doctor of Philosophy (Ph.D.) in engineering. The degree is conferred by North Carolina State University.

** Certificate of Advanced Study licensure is based upon the completion of approved programs of study beyond the master's degree.

COLLEGE OF ARCHITECTURE

Dean: Professor Hight; *Chair*: Associate Professor Lambla; *Professors*: Sauda, Heath, Walters; *Associate Professors*: Benzing, Breitschmid, Brentrup, Carlson-Reddig, Gray, MacLean, Nelson, Ryan, Swanson, Swisher, Weiss, Wong; *Assistant Professors*: Clark, Forsyth, Rogers, Unwin-Barkley, West; *Visiting Assistant Professor*: Samuels; *Part-time Lecturers*: Gaddy, Preiss; Adjunct Professors: Kelley, Williams

Mission. The mission of the College of Architecture (COA) is to further the discourse between the theory and practice of architecture by the education and training of students, the work and research of the faculty, and ongoing engagement with the University, the profession, and the community. Architecture in the narrow sense includes important public monuments and, in the broader sense, the constructed environment at all scales.

To prepare undergraduate students to become future community and architectural leaders, the College of Architecture seeks to provide both a liberal and a professional education based on a holistic view of the built environment. The studio/seminar sequence in the Core Program emphasizes both writing and making to introduce students to alternative and complementary methods of investigating problems. The professional degree path in the Advanced Program culminates in a comprehensive architectural project emphasizing self-direction and individualized instruction.

Admission. All students must first apply and be accepted by the University. Following acceptance to the University, application is then made to the College by: 1) completion and submission of a COA questionnaire; 2) an evaluation of this questionnaire by a faculty committee; and, if selected, 3) a personal interview, including the presentation of samples of their creative work in a portfolio.

Admission to the College of Architecture is to the Five-Year *Bachelor of Architecture* program at the undergraduate level. Following Year 3, students are required to submit an "Individualized Study Plan" with the Academic Advisor which declares their intent to pursue one of two academic tracks: either a four-year, *Bachelor of Arts in Architecture* program (which is not a professionally accredited degree) or the five-year, *Bachelor of Architecture* program (professionally accredited).

Students who maintain a minimum grade point average set by college faculty (currently 2.75 in architectural studies through the fourth year) are permitted automatic continuation to the fifth year. Students who do not perform at this level must submit a separate application for admission to the fifth year *Bachelor of Architecture* program.

BACHELOR OF ARCHITECTURE

The professional program leads to the **Bachelor of Architecture** degree which requires a total of 158 credit hours. This five-year program provides the professional degree accredited by the National Architectural Accreditation Board (NAAB). Students in this program are also awarded a *Bachelor of Arts in Architecture* degree at the end of four years.

Core Program. All students in the College complete a three-year core sequence of courses designed to provide a solid understanding of fundamental issues, knowledge, and skills in architecture. These courses include a series of coordinated studios, skill-building workshops and seminars, a four-semester sequence of architectural history (two survey courses and two topics electives), and three courses in building technology (one course in architectural materials and two semesters of structural design).

Advanced Program. Students proceeding toward the Bachelor of Architecture degree program enter the Advanced Program in their Fourth and Fifth Years of study. These years present the opportunity for greater depth of inquiry, breadth of understanding and synthesis through architectural design.

In the Fourth Year several topical design studios are offered which permit focused study. These include (typically): urban and community design, tectonic issues, lighting and energy use, landscape and site, and contemporary issues in architectural design. Additionally, students enrolled in the Advanced Program complete two remaining courses in building technology (Environmental Control Systems and Building Systems Integration) and Professional Practice.

The final, Fifth Year is composed of a year-long sequence of two linked studios which are directed at an individual Comprehensive Architectural Project involving design research and application.

The College also offers a **one-year Bachelor of Architecture program** for students who have an architectural or environmental design degree from another NAAB accredited institution. Following an assessment of student performance criteria for equivalence with the UNC Charlotte program, students will be required to complete a minimum of 30 credit hours, including 12 hours of architectural studio, nine hours of other architectural courses and nine hours of general studies. No transfer credit is accepted for this program.

Curriculum Outline: Bachelor of Architecture

Core Program

First Year

ARCH 1101 Architecture Design Studio 1	5
ARCH 1601 Architectural Seminar	2
MATH 1103 (GOAL II)	3
ENGL 1101 (GOAL I)	3
PHYS 1101 (GOAL IV)	4
ARCH 1102 Architecture Design Studio 2	5
ARCH 1602 Architectural Seminar	2
GOAL II	3
ENGL 1102 (GOAL I)	3

GOAL III 3

Second Year
ARCH 2101 Architecture Design Studio 3 (GOAL I: O) 5
ARCH 2601 (GOAL I: W) Architectural Seminar 3
ARCH 4211 Architectural History 1 (GOAL V: A)..... 3
General Elective* 3
GOAL IV (S) 3

ARCH 2102 Architecture Design Studio 4 5
ARCH 4312 Architectural Materials 3
ARCH 4212 Architectural History II 3
Goal VI (X) 3
Foreign Language 4

Third Year
ARCH 3101 Architecture Design Studio 5 5
ARCH 4313 Structures 1 3
ARCH 4213 Topics In History/Theory I 3
Foreign Language 4

ARCH 3102 Architecture Design Studio 6 5
ARCH 4314 Structures 2 3
ARCH 4214 Topics in History/Theory II 3
ARCH 4050 Architectural Elective 3
GOAL I (W) 3
(Individual Study Plan Required of all students)

Advanced Program

Fourth Year
ARCH 4101 Topical Architectural Studio 5
ARCH 4315 Environmental Control Systems 3
ARCH Elective* 3
GOAL VI (C/X) 3

ARCH 4102 Topical Architectural Studio 5
ARCH 4050 Architectural Elective 3
General Elective* 3
GOAL V (L) 3

Bachelor of Arts degree in Architecture: 128 hours

Fifth Year
ARCH 4103 Project Document 6
ARCH 4317 Bldg. Systems Integration. 3
ARCH or General Elective* 3
Methods Course 3

ARCH 4104 Project Design 6
ARCH 4112 Architectural Practice 3
ARCH or General Elective 3
General Elective 3

Bachelor of Architecture: 30 hours

BACHELOR OF ARTS IN ARCHITECTURE

Students submitting an "Individualized Study Plan" in their Third Year may alternatively pursue a four-year Bachelor of Arts degree with a major in Architecture requiring a total of 128 credit hours. This degree is not an accredited first professional degree. The course requirements for this degree track differ substantially from those of the Bachelor of Architecture program. These differences are primarily aimed at providing a flexible curriculum that replaces design studios and Structures II with directed electives.

This degree is for students not intending to continue to the five-year, professional degree. Students choose to augment their architectural studies with coursework from other University departments in their fourth year, double major or minor in other disciplines, or prepare to pursue graduate studies in related fields (such as, planning, urban design, landscape architecture, or architectural history).

Curriculum Outline: Bachelor of Arts in Architecture

First Year
ARCH 1101 Architecture Design Studio 1 5
ARCH 1601 Architectural Seminar 2
MATH 1103 (GOAL II) 3
ENGL 1101 (GOAL I) 3
PHYS 1101 (GOAL IV) 4

ARCH 1102 Architecture Design Studio 2 5
ARCH 1602 Architectural Seminar 2
GOAL II 3
ENGL 1102 (GOAL I) 3
GOAL III 3

Second Year
ARCH 2101 Architecture Design Studio 3 (GOAL I: O) 5
ARCH 2601 (GOAL I: W) Architectural Seminar 3
ARCH 4211 Architectural History 1 (GOAL V: A)..... 3
General Elective* 3
GOAL IV (S) 3

ARCH 2102 Architecture Design Studio 4 5
ARCH 4312 Architectural Materials 3
ARCH 4212 Architectural History II 3
Goal VI 3
Foreign Language 4

Third Year
ARCH 3101 Architecture Design Studio 5 5
ARCH 4313 Structures 1 3
ARCH 4213 Topics In History/Theory I 3
Foreign Language 4

ARCH 3102 Architecture Design Studio 6 5
ARCH 4214 Topics in History/Theory II 3
ARCH 4050 Architectural Elective 3
General Elective 3
GOAL I (W) 3

Fourth Year
ARCH 4315 Environmental Control Systems 3
General Elective 3
Goal IV (S) 3
Goal VI (C) 3

General Elective 3
General Elective 3
General Elective 3
Goal V (L) 3
General/COGE Elective 4

Bachelor of Arts degree in Architecture: 128 hours
**Courses to be selected in accordance with program of study developed with and approved by faculty advisor.*

Academic Standards. Following are specific academic standards for each degree program:

B.A. degree in Architecture: One grade of *D* in a studio is permissible. A grade of *D* in a subsequent studio will require repeating the course. A student may not repeat a course more than once. Successive *D* grades will result in academic suspension.

To graduate, an overall grade point average of 2.0 must be achieved in all courses offered by the College.

Bachelor of Architecture degree: A grade of *C* is the minimum passing grade in both studios, ARCH 4103 and 4104. A grade of *D* in ARCH 4103 prohibits a student from entering ARCH 4104; a grade of *D* in ARCH 4104 prohibits a student from graduating. Courses for which a grade of *D* is received must be taken again; any student receiving less than a grade of *C* when repeating a studio course will be suspended from enrollment in the COA.

A grade of *F* in either ARCH 4103 or 4104 requires a student to reapply to the 5th year program.

To graduate, all students must maintain an overall grade point average of 2.5 in Fifth-Year coursework offered by the College.

Areas of Academic Focus. College faculty offer expertise to provide instruction in the following areas:

Architectural Design Studios and Seminars: The studios and seminars provide both analytical and synthetic experiences and the opportunity to pursue intense study of physical-environmental related subject(s). These courses link humanistic, physical phenomena, social-psychological, behavioral and perceptional studies.

Building Technology Courses: These provide a basic quantitative and qualitative understanding of building materials, structural theory and design, environmental control issues, and building systems integration.

Architectural History Lectures: These develop an understanding of the relationships between culture and its physical manifestations from ancient to contemporary times.

Architectural Electives: These courses provide for topical study of issues current and historic to architectural practices: theoretical concerns, urban design, landscape, representational ability, technical skill, community practice, and constructional/making concerns.

Electives are organized around five themes, with an illustration of courses typically offered:

Visual Studies:
- "Experimental Photography for Architecture Students"
- "Watercolor & Representation"
- "FormZ"
- "Advanced FormZ: Digital Attack on Charlotte"

Technology:
- "School House Light"
- "Light Revealing Architecture"
- "The Nature of Architecture and the Architecture of Nature"
- "The Art of Technology"
- "Bio-Climatology"

Urbanism/Settlements:
- "WastelandsBorderlandsHomelands"
- "Community Planning Workshop"
- "Shaping The American City"
- "Urban Design: Contemporary Strategies for the Public Realm"
- "Dilemmas of Modern City Planning"

Making:
- "Objects and Analysis"
- "Furniture Making" (woodwork)
- "Making Simple Tools" (metalwork)

Practice:
- "Design Development"
- "Building Economics for Architects"
- "Leadership in Charlotte"
- "Introduction to Real Estate Development"

Independent Studies: When appropriate, a student may pursue a self-directed, faculty-approved study of a particular, significant architectural topic or subject.

General University Requirements and Directed Electives: Courses to meet the University's General Education requirements and elective studies are included in a student-selected, faculty-approved plan of study.

Advising: The advising program consists of three tiers: Staff Academic Advisor; Core and Advanced Program Coordinators; and faculty career advisors.

Dual Degree/Major Option: It is possible (and encouraged) for students to pursue a double degree or major program after the freshman year. Thus, in addition to architecture, a student may pursue major study in a discipline such as history, engineering, business management, or social science. Any arrangement must meet the University and College requirements, be structured in consultation with a faculty advisor, and be approved by the Dean.

Education Abroad Programs: The College has conducted studio and field study summer programs in Italy and Spain since 1987 for students in the Advanced Program. In addition, exchange arrangements exist through the Office for International Programs for students to study architecture for one or two semesters at: University of Copenhagen (Denmark); Kingston University (London, England); The University of Applied Science, (Aachen, Germany); Monterrey Tech (Monterrey, Mexico); and the Henry van de Velde Institute (Antwerp, Belgium).

Accreditation. The College of Architecture maintains accredited status through the National Architectural Accrediting Board, which reviews the curriculum, facility, faculty, and program resources annually. In addition, the NAAB conducts an intensive site visit every six years. The College has maintained full accreditation standards as prescribed by this board and includes the requisite statement:

"In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit US professional degree programs in architecture, recognizes two types of degrees. the Bachelor of Architecture and the Master of Architecture

A program may be granted a six-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established educational standards.

Masters degree programs may consist of a preprofessional undergraduate degree and a professional graduate degree, which when earned sequentially, comprise an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree."

"The NAAB grants candidacy to new programs that have developed viable plans for achieving initial accreditation. Candidacy status indicates that a program should be accredited within six years of achieving candidacy, if its plan is properly implemented."

- *National Architectural Accrediting Board*

College of Arts and Sciences

Dean: Professor Lyons; *Associate Dean:* Professor Hill; *Director of Sponsored Research:* Lesley A. Brown; *Director of Instructional Technology:* Dale D. Pike

Objectives. The College of Arts and Sciences, largest of the University's seven colleges, consists of 20 departments and six programs which share basic educational values and academic aspirations. The primary mission of the college is threefold: 1) the provision of programs of study and instruction in the arts and sciences to qualified undergraduate and graduate students; 2) the advancement of the arts and sciences through the scholarly activity of the faculty; and 3) the provision of service to the University and general public.

The liberal arts are the core of the University's educational program, both for students majoring in Arts and Sciences and for students majoring in professional degree programs. As a result, courses offered within the College of Arts and Sciences are frequently those designated to satisfy University General Education requirements (see *General Education Requirements* for all Baccalaureate Degrees).

Organization. The College of Arts and Sciences includes the Departments of African-American and African Studies; Art; Biology; Chemistry; Communication Studies; Criminal Justice; Dance and Theatre; English; Geography and Earth Sciences; History; Language and Cultural Studies; Mathematics; Music; Philosophy; Physics; Political Science; Psychology; Religious Studies; Sociology and Anthropology; and Social Work. Interdisciplinary programs in American Studies, Gerontology, Liberal Studies, University Honors, International Studies, and Women's Studies are also part of the College of Arts and Sciences.

Programs. Baccalaureate degrees are offered in all departments and minors are available in the following programs: Actuarial Mathematics, African-American Literature, African American and African Studies, American Studies, Anthropology, Biology, Biotechnology, Chemistry, Cognitive Science, Communication Studies, Criminal Justice, Dance, Earth Sciences, English, Film Studies, French, Geography, Geology, German, Gerontology, History, History of Art, International Studies, Japanese, Journalism, Judaic Studies, Mathematics, Museum Studies, Music, Neuroscience, Philosophy, Physics, Political Science, Psychology, Religious Studies, Russian, Social Work, Sociology, Spanish, Technical and Professional Writing, Theatre, Urban Studies, and Women's Studies. Medical technology options are available in Biology and Chemistry.

The following graduate degrees are offered by the College of Arts and Sciences: Master of Arts degree with majors in Biology, Clinical/Community Psychology, Counseling, English, Geography, Gerontology, History, Industrial/Organizational Psychology, Liberal Studies, Mathematics, Mathematics Education, and Sociology; Master of Science degree with majors in Applied Mathematics, Applied Physics, Applied Statistics, Biology, Chemistry, and Criminal Justice; Master of Public Administration; Master of Social Work; and Ph.D. degrees in Applied Mathematics, and Biology (Biomedical/Biotechnology). *For information regarding graduate programs, please refer to the Graduate Catalog.*

In addition, graduate certificates are offered in the following areas: Anthropology, Communication Studies, English Language Studies, French, Gerontology, German, Philosophy, Political Science, Religious Studies, Spanish, Technical/Professional Writing, and Women's Studies. *(For information, see the Graduate Catalog.)*

Although faculty within the College are committed to departmentally-based programs, increased emphasis is being placed on providing strong interdisciplinary programs. The College also strives to promote inter-cultural understanding through its curriculum, as well as through student exchanges and travel opportunities.

Advising Center. The College of Arts and Sciences administers an advising center for students who have not selected a major. Students admitted to the University who have not determined their career goals are urged to seek assistance from the staff of the Advising Center. Any student, regardless of major, is encouraged to consult with these advisors to clarify academic regulations.

Since all students entering the University must meet the same General Education requirements regardless of major, it is appropriate to concentrate on the completion of those requirements before committing to a specific major. Undeclared students have time to enroll in courses in several disciplines, which allows them to make a more informed judgment about future career decisions. Advisors have a broad working experience with the requirements for majors and offer assistance as students search for the education choice best suited to their individual needs.

Experiential Learning Opportunities. Students are encouraged to participate in professional work experiences in support of their academic and career development through the cooperative education and internship programs offered to students in the College. The College is working with the University Career Center to expand experiential learning offerings to enable more students to graduate with career related experience. For more information about experiential learning programs, contact the University Career Center.

Cooperative Education involves professionally related, paid work experiences in multiple semesters. It does not offer academic credit, but it is noted on the student's transcript. To participate in this program, students must have a minimum GPA of at least 2.5, meet specific departmental requirements, and pay a participation fee. Approval for enrollment must be arranged before the student begins the work experience. Most students begin this program during their junior year; transfer students must complete one semester at UNC Charlotte before making application for the program. Students maintain full-time student status during their co-op work semesters.

Internships usually involve one semester of a professional experience that allows a student to test his or her career options. Academic requirements for participation vary by department. Typically, a GPA of at least 2.5 is required.

With faculty approval, students may receive academic credit for their work experience; non-credit internships are available through the University Career Center. All internships must be arranged in advance.

49erships involve paid or unpaid work in a career-related position for professional experience. A minimum of 80 work hours for one semester is required to complete the program. Fall and Spring 49erships are part-time. Summer 49erships may be full or part-time. Full-time students who are in good University standing, have completed their freshman year, and have a 2.0 minimum cumulative GPA are eligible.

Department of African-American and African Studies

Chairperson and Frank Porter Graham Professor: Azevedo; *Professor:* Ojaide; *Associate Professors:* Ruiz; Nmoma; *Lecturer* Smith; *Adjunct Assistant Professors*: Davis, Mixon, Leak

The African-American and African Studies program addresses itself to the experience of peoples of African descent on the continent of Africa and in the diaspora, particularly in the United States. It provides a coherent focus on the history, economy, politics, literature, religion, and culture of black people throughout the world and their interaction with the rest of humankind. Its interdisciplinary approach, drawing from the experience of faculty trained in the areas of African-American and African Studies, presents a stimulating diversity of perspectives integrated into a totality not available in other disciplines, programs or departments. The curriculum is designed to provide a useful educational experience and academic skills for students who wish to consider graduate study or professional school and pursue careers in community development agencies; federal, state, and city civil service; business; museums and archives; and diplomatic or foreign service; as well as research, journalism, international organizations, and teaching.

The goals of the Department of African-American and African Studies are:

1. To provide and preserve knowledge with purpose and direction about the aggregate experience of peoples of African descent by offering a Bachelor of Arts degree in African-American and African Studies and courses in the field to the University community and the public.
2. To foster intercultural understanding, expose and correct biased scholarship, and dispel myths and stereotypes through course content, programs, exchanges, and cultural interaction.
3. To provide a cultural background (through courses, advising, and other meaningful activities) supportive to students, particularly African-American students, in moving toward personal growth and self-awareness.
4. To provide general and specific academic skills to majors and non-majors through courses and activities that promote research, writing, reading, and effective communication.
5. To promote an African-American and African perspective that will foster a political consciousness about the common bond uniting blacks in the diaspora and the African continent.
6. To prepare and assist students for career choices in life and graduate and professional schools through exposure to relevant experiences, courses, and the demands of the working world.
7. To establish and maintain the Department's interdisciplinary and intercultural nature through cooperative arrangements with other academic departments and civic and cultural institutions.
8. To generate new knowledge and paradigms about the African-American and African experience through research and publication and constant communication with similar programs.
9. To promote faculty development by providing required financial means, time, resources, and proper environment to accomplish this end.

Study Abroad. Students may have an opportunity to travel, work, and study abroad in an exchange program through an African University, the Peace Corps, and Operation Crossroads.

BACHELOR OF ARTS

Students interested in the African-American and African Studies major leading to a B.A. degree are required to complete a minimum of 30 credit hours in the fields of African-American and African Studies, chosen from AAAS 1100, 1111, 1112, 1103 or 1104, 2203, 2204, 2205, 2206, 3290, 3601 and 3990. Students may not graduate without completing AAAS 1100, 1111, 1112, 3290, and 3601. Students are strongly encouraged also to take AAAS 2201. In order to acquire experiences to enhance their career choices, students majoring in African-American and African Studies are recommended to pursue a double major in related areas such as history, political science, sociology, religious studies, criminal justice, anthropology, and psychology. Furthermore, students have the option to concentrate either in the African-American or the African dimension of the program.

The required junior research methods and senior seminar courses introduce students to research methodology and an in-depth probe into the themes and theories of African-American and African Studies. During the junior or senior year, with the instructor's assistance in the research methods class, students design and work on a major research project. Using library, archival, or community resources, students demonstrate practical mastery and synthesis of the skills and knowledge acquired through the major courses of study. Consult the Department of African-American and African Studies for a Suggested Schedule to complete the B.A. degree with a major in African-American and African Studies.

Senior projects may require student involvement in co-op programs, internships, or community agencies such as the Afro-American Cultural Center, the Greenville Center, City Hall, the Leader, the Metrolina Association for the Blind, Planned Parenthood, the Charlotte Observer, and the Charlotte Post.

Like most disciplines in the College of Arts and Sciences, the AAAS Department requires that AAAS majors complete

the 2201 level course (or equivalent) in a modern language (other than English), preferably one that serves as a tool of research in African Studies and uses the Latin alphabet (e.g., French, German, Italian, Portuguese, or Spanish). Non-native speakers of English may complete the foreign language requirement by passing ENGL 1102 or the equivalent.

MINOR

A minor in African-American and African Studies consists of a minimum of 18 semester hours: six hours each at the 1000 level, the 2000 level, and the 3000 or above level. Required courses are AAAS 1100, a 2000 level course in the African diaspora component and a course in the continental component of the Department's program. A minimum GPA of 2.0 in the hours attempted for the minor is required. AAAS 3895 shall not count towards the minor.

American Studies

INTERDISCIPLINARY STUDIES

Coordinator: Professor West

American Studies is an interdisciplinary program designed to develop in-depth knowledge of American society, past and present. Drawing its curriculum from approved classes in other departments and its own core courses, the program weaves traditionally divergent disciplines together so that students gain a broad understanding of American life and culture. The American Studies program is open to students of all majors. Students may complete the program by fulfilling requirements for the minor.

AMERICAN STUDIES MINOR

A minor in American Studies consists of 18 semester hours: six hours of american studies courses including AMST 3100, and 12 semester hours of american studies courses or approved American-content courses from other departments. A maximum of six of these hours may be in the student's major. All students must have a grade point average of at least 2.0 in courses applied to the minor.

The following courses have been approved for the minor. Because additions and deletions are made to correspond to current University offerings, students are advised to consult with the Coordinator. Other classes that do not appear on the list, especially topics and independent study courses, may be approved if they are pertinent to the student's program and deal with an American topic.

Anthropology: 2112, 2152
Architecture: 1100
Arts: 3117, 3119
English: 2104, 3141, 3142, 3143, 3144, 3145, 3146, 3147, 3148, 3149, 3155, 4103, 4141, 4145
History: 1160,1161, 2000, 2101, 2120, 3216, 3201, 3202, 3211, 3212, 3213, 3214, 3241, 3242, 3252, 3256, 3281, 3288
Economics: 1101, 2101, 2102, 3131, 3170
African-American and African Studies: 1101, 1102, 1111, 2203, 2204, 2215, 3050, 3101, 3179
Philosophy: 3050, 3217
Religious Studies: 2108, 3135, 3137
Criminal Justice: 3102, 3110, 3120, 3121, 3140, 3141, 3150, 3151,
Geography: 2155, 2160, 3100, 3105, 3110
Music: 1133, 1134
Political Science: 1110, 3010, 3101, 3103, 3104, 3105, 3109, 3110, 3111, 3112, 3113, 3114, 3115, 3116, 3117, 3118, 3119, 3121, 3124, 3126, 3157
Sociology: 2112, 2132, 2163, 2171, 3110, 3125, 4124, 4125, 4632
Women's Studies: 1101

Department of Art

Chair: Associate Professor Thomas; *Professors Emeritus:* Anderson, Kampen; *Professors:* Jacoby, Kovach, MacKillop, Strawn; *Associate Professors*: Bezner, Brenner, Hudson, Tite; *Assistant Professors* Franki, Hoover, Murphy, Noble, Tuma, Tweedy; *Lecturers:* Brodeur, Bryant, Butckovitz, DeLevie, Hawthorne, Kluttz

The Department of Art offers a diverse and comprehensive program leading to a Bachelor of Fine Arts, a professional degree, and a Bachelor of Arts, a liberal arts degree in Art. The curriculum provides studio concentrations in drawing, painting, printmaking, time arts, graphic design, illustration, fibers, ceramics, and sculpture, in addition to a concentration and minor in Art History and teacher licensure in art.

Members of the studio faculty are well recognized professional artists, active in their fields of specialization. A diversity of viewpoints and educational training among faculty members encourages students to investigate and appreciate different forms of art expression.

The required study of art history offers a key to understanding the evolution of civilization and the development of human creativity. As a discipline, art history encourages appreciation of individual works of art and instills a vivid awareness of the social and historical context in which these works were produced.

The Art program addresses the needs of students working to become exhibiting artists, art teachers, or scholars generally educated in the arts. It also prepares students for a wide range of career choices in art-related professions. The program is structured upon the following premises:

- Students need an awareness of the common core of historical and theoretical knowledge in the arts.
- Students need a basic level of skill and aesthetic sensitivity in a variety of studio disciplines.
- Students need in-depth knowledge in a personal area of specialization.

The undergraduate program in Art develops within students the ability to identify artistic problems and to solve them; it leads to an awareness of the interrelatedness of all forms of visual knowledge; and it inspires a creative

philosophy unique to each individual bolstered by the critical self-motivation necessary for success.

Concentrations may be earned in Art History, Painting, Fibers, Ceramics, Drawing, Graphic Design, Illustration, Printmaking, Time Arts, Sculpture, or in a Cross-Disciplinary Concentration. Concentrations for the BA degree require 12 semester hours; those for the BFA degree require 18-24 semester hours. See departmental advising sheets for details.

Students may receive a dual concentration by completing the concentration requirements in two areas. This may require additional units for the completion of graduation requirements.

Courses designated "for non-majors only" cannot be counted toward the total numbers of units required for the major. Students must receive a grade of *C* or better in all courses applied to the major.

Related Work: All Art majors must complete the 2201 level course (or the equivalent) in a language other than English that uses the Latin alphabet (e.g., French, German, Italian, Portuguese, Spanish) OR the 1202 level course (or the equivalent in a language that does not use the Latin alphabet (e.g., Arabic, Chinese, Greek, Japanese, Russian). Non-native English speakers may complete the foreign language requirement by passing ENGL 1101 and ENGL 1102 or the equivalent.

Advisory System. Art students initially are assigned an advisor. Upon selecting a concentration, they may change to an advisor in the area of concentration. In addition to meetings required for preregistration, the student may ask the advisor for any art program information. Advising sheets listing all curriculum requirements are available in the Department office.

BACHELOR OF ARTS (B.A.)
General Requirements. All students majoring in Art are required to complete courses that satisfy the six Goals of UNC Charlotte Education listed earlier in this Catalog.

I. Core (42)

ACADEMIC COURSES
ARTA 1211 Art History Survey I (3) (A) COGE Goal V
ARTA 1212 Art History Survey II (3)
ARTA xxxx Art History Elective (3)
ARTA 2212 Art History Methods (3) **or**
ARTA 3211 Contemporary Art History (3) **or**
ARTA 3212 Contemporary Theory & Criticism (3)
ARTA 3600 Senior Seminar (3) (W,O) COGE Goal 1

FOUNDATION STUDIO COURSES
Students may not go on to the second level of any art class until ALL foundation courses have been met or are taken concurrently.
ARTB 1201 2D Design (3)
ARTB 1202 3D Design (3)
ARTB 1203 Drawing I (3)
ARTB 1205 Figure Drawing I (3)
ARTB 1206 Concepts & Technology (3)

MEDIA BREADTH
Students may not take a third class in their concentration until ALL media breadth courses have been met or are taken concurrently.
2D Breadth: 1 course from 2 areas other than the concentration (6)
- Painting
- Time Arts
- Printmaking
- Graphic Design
- Illustration
- Electronic Media
- Drawing

3D Breadth: 1 course from 2 areas other than the concentration (6)
- Sculpture
- Ceramics
- Fiber

BACHELOR OF FINE ARTS (B.F.A.)
General Requirements. All students majoring in Art are required to complete courses that satisfy the six Goals of UNC Charlotte Education listed earlier in this Catalog.

I. Core (42)

ACADEMIC COURSES
ARTA 1211 Art History Survey I (3) (A) COGE Goal V
ARTA 1212 Art History Survey II (3)
ARTA xxxx Art History Elective (3)
ARTA 2212 Art History Methods (3) **or**
ARTA 3211 Contemporary Art History (3) **or**
ARTA 3212 Contemporary Theory & Criticism (3)
ARTA 3600 Senior Seminar (3) (W,O) COGE Goal 1

FOUNDATION STUDIO COURSES
Students may not go on to the second level of Any art class until ALL foundation courses Have been met or are taken concurrently.
ARTB 1201 2D Design (3)
ARTB 1202 3D Design (3)
ARTB 1203 Drawing I (3)
ARTB 1205 Figure Drawing I (3)
ARTB 1206 Concepts & Technology (3)

MEDIA BREADTH
Students may not take a third class in their concentration until ALL media breadth courses have been met or are taken concurrently.
2D Breadth: 1 course from 3 areas other than the concentration (9)
- Painting
- Time Arts
- Printmaking
- Graphic Design
- Illustration
- Electronic Media
- Drawing

3D Breadth: 1 course from 2 areas other than the concentration (6)
- Sculpture
- Ceramics
- Fiber

Jewelry/Metalsmithing

II. Concentration (12)

A minimum of 4 courses in one area as directed by discipline. (equivalent to 2 yrs. in discipline)

Total 54

Jewelry/Metalsmithing

II. Concentration (18-24)

A minimum of 6 courses in one area as directed by discipline. (equivalent to 3 yrs. in discipline)

III. Art Electives (15)
Up to 18 hours depending on concentration requirements

Total 78

Teacher Licensure. The Department offers a program of art and professional education courses to prepare students for K-12 teacher licensure in North Carolina. Licensure applications are the responsibility of the student and the Office of Student Academic Services in the College of Education.

Students planning to pursue art teacher licensure must contact the Coordinator of Art Education during the first semester of their sophomore year to obtain appropriate advising. The student is admitted to the Art Teacher Education Program and student teaching in art through consecutive application procedures that occur after the semester the student completes ARTE 3121, Art Education Methods 1. This is normally the middle of the junior year. Criteria for admission to the Art Teacher Education Program and student teaching are:

1. Overall GPA of 2.75.
2. A GPA of 2.75 in both the education course sequence and art major.
3. Successful completion of the Praxis I: Pre-Professional Skills Tests.
4. Completion of all classes in the education course sequence. (note, provisional admission may be granted as long as all education courses are successfully completed before student teaching.)
5. Grades of *C* or better in all courses required for licensure.
6. Recommendation of the Coordinator of Art Education. A student not recommended by the Art Education Coordinator may appeal to the Art Department Chair who will appoint a three-member faculty review committee to interview and evaluate the student. The decision of this committee is final.

Post-baccalaureate students with a degree in Art may meet competencies for K-12 art licensure following the same program worksheets. They should apply through the Coordinator of Art Education when they are admitted to the University.

Students who complete all the requirements for teacher licensure in art will be considered as having completed a second concentration in art education in the B.A. or B.F.A. programs.

Requirements. Students seeking teacher licensure in art must complete B.A. or B.F.A. degree requirements and in the process must complete the following courses:

Media Breadth: (1 course from each of the following areas as designed on program worksheet)

Ceramics	Painting
Electronic Media	Time Arts
Fiber	Printmaking
Graphic Design	Sculpture/Jewelry

Art Education Curriculum:

ARTE 3121. Art Education Methods I (3)
ARTE 3122. Art Education Methods II (3)
ARTE 3467. Student Teaching/Seminar: K-12 Fine and Performing Arts: Art (15)

Education Curriculum:

EDUC 2100 Introduction to Education and Diversity in Schools (C) (3)
EDUC 2150 Human Development Across the Life Span (3) **or**
MDSK 3160 Learning and Development: Birth through Adolescence (3)
SPED 2100 Intro. To Students with Special Needs (2)

Note: Concentration requirements may include one course from the media breadth. Some concentrations require more hours than others.

MINOR IN HISTORY OF ART

A minor in the History of Art consists of 18 semester hours, including ARTA 1211, ARTA 1212, and four Art History electives. The student must achieve a GPA of 2.5 or above in the minor. At least six hours must be taken at UNC Charlotte.

SUGGESTED SCHEDULE FOR THE FIRST TWO YEARS OF THE ART MAJOR

Freshman Year

ARTB 1201 or 1202	3
ARTB 1203	3
ARTA 1211 (A)	3
GOAL I: Foreign Language	4
GOAL I: ENGL 1101	3
ARTB 1201 or 1202	3
ARTB 1206	3
ARTA 1212	3
GOAL I: Foreign Language	4
GOAL I: ENGL 1102	3

Sophomore Year

ARTB 1205 Figure Drawing I 3
ARTX xxxx 2D Media Breadth Studio..... 3
ARTX xxxx 3D Media Breadth Studio..... 3
GOAL II: Problem Solving (P)..... 3
GOAL III: Values (V)..... 3

ARTX xxxx 2D Media Breadth Studio..... 3
ARTX xxxx 3D Media Breadth Studio..... 3
ARTX xxxx Major Concentration Studio..... 3
GOAL II: Problem Solving (P)..... 3
GOAL I: Writing Intensive (W)..... 3

A list of required courses for each concentration and art teacher licensure are available in the Department Office. Students planning to become art teachers may follow a different schedule than the above and must consult the Department upon entering the University.

Note: Students must enroll in studio art courses every semester, beginning in the freshman year or expect a delay in completing graduation requirements. Students must not postpone electing studio art courses until their General Education Requirements are met, but instead spread these required courses over a four-year period.

Department of Biology

Chairperson: Professor Clemens; *Professors*: Barden, Bost, Hudson, Huet-Hudson, Leamy, Mellichamp, Menhinick, Oliver, Reynolds, Schneider; *Professors Emeritus*: Edwards, Hechenbleikner, Hildreth, Matthews, Thomas; *Associate Professors*: Langsam, Ostrowski, Peters, Steck; *Assistant Professors*: Anguita, Bashor, Hughes, Marriott, Zhang; *Lecturers:* Bryska, Gross, Hite, Simpson, Warner

The biological sciences are important in many areas of human endeavor encompassing wide-ranging career opportunities in medicine and allied health professions, education, research and industry. The Department of Biology offers undergraduate programs leading to the Bachelor of Arts degree and the Bachelor of Science degree. Both provide a firm foundation in the basic principles of biology as background to understanding the biological world, and as preparation for many technical careers, careers in education, or for advanced studies in academic or professional programs. The minor in Biology is offered for students who desire a background in biology as an adjunct to their major.

Biology programs can be tailored to fit the individual student's needs and interests. Through course selection, the student can emphasize many areas within biology: plant sciences, including horticulture, systematics, and plant physiology and ecology; animal sciences, that include behavior, morphology and physiology; microbial science, including virology and microbial physiology; cellular/molecular studies, such as genetics, development, immunology and biotechnology; and environmental sciences, including ecology and evolution. Opportunities for individual activity occur at every level from undergraduate research and tutorials with faculty in the junior and senior courses to honors research projects in the senior year. A program in medical technology is offered in cooperation with other institutions.

BACHELOR OF ARTS

A major in Biology leading to the B.A. degree consists of 32 semester hours of biology including: (1) a core sequence of Plant (BIOL 1222 +Lab), Animal (BIOL 1233 +Lab), and Cell (BIOL 2111 +Lab); [A grade of *C* or better is required in the lecture sections of these three courses before one may advance]; (2) three area courses: Genetics (BIOL 3166), Ecology (BIOL 3144), and Physiology (BIOL 3272 or 3273); and (3) seminar (BIOL 4600). The B.A. degree requires a total of five biology laboratories including the required labs. Additional requirements are CHEM 1251,1252, and 2131, with associated labs, three semester hours of mathematics, and STAT 1221. At least 12 hours of biology must be taken at UNC Charlotte.

BACHELOR OF SCIENCE

In addition to the 32 hours of biology required for the B.A. degree, a student working toward the B.S. degree is required to take 12 additional hours in biology for a total of 44 hours, two additional biology laboratories for a total of seven, CHEM 2132 with associated laboratory, PHYS 1101, 1102 and associated labs, and three additional hours of mathematics.

SUGGESTED SCHEDULE: B.A. or B.S. IN BIOLOGY

Following is the sequence in which required courses should be taken, even if they are not taken during the year indicated:

Freshman year: BIOL 1222 + L and 1233 + L; CHEM 1251 + L and 1252 + L
Sophomore year: CHEM 2131 + L; BIOL 2111 +, 2111L; then BIOL 3166, 3144
Junior year: BIOL 3272 or 3273, then advanced electives of any number
Senior year: BIOL 4600 (seminar) and advanced electives of any number

See the Department of Biology for a more detailed schedule for the four-year program leading to the B.A. or B.S., including schedules for each of the options.

BIOLOGY MINOR

A minor in Biology requires 18 hours, including BIOL 1222 and 1233 (or BIOL 1110 and 1115) and associated labs (only one of these sequences is allowed, but other courses at the 1000 level are acceptable); one additional laboratory for a total of three; at least one three hour course (not necessarily with lab) at or above the 2000 level; and a GPA of at least 2.0 in the minor. Students are responsible for meeting all Biology course prerequisites and corequisites. At least six hours must be taken at UNC Charlotte.

BACHELOR OF SCIENCE WITH AN OPTION IN CELL BIOLOGY/PHYSIOLOGY

A B.S. in Biology with an option in Cell Biology/Physiology consists of 44 hours. These include the core biology courses, Plant (BIOL 1222, 1222L), Animal (BIOL 1233, 1233L), and Cell Biology (BIOL 2111, 2111L); three area courses in genetics (BIOL 3166), Ecology (BIOL 3144), Physiology (BIOL 3272 or 3273); and Biology Seminar (BIOL 4600). In addition, Physiology lab (BIOL 3273 or 3273L) must be taken. Three additional laboratories from among the area courses or track electives must also be taken to complete the requirements of the B.S. The track also requires that students choose one course from each of the following areas: 1) **Subcellular** topics, 2) **Structure and Function,** and 3) **Advanced Physiology.** Consult the Biology Department for a current list of approved courses in these areas. A minimum of nine additional hours will be chosen, in consultation with an advisor, from appropriate electives depending upon the student's interests. Students are encouraged to take Investigations in Biology (BIOL 3900) or Honors in Biology (BIOL 4700, 4701) under the direction of one of the Cell Biology or Physiology faculty. Students are responsible for completing all of the chemistry, math, and physics courses required for a B.S. in Biology.

Plant Biology (BIOL 1222, 1222)	4
Animal Biology (BIOL 1233, 1233L)	4
Cell Biology (BIOL 2111, 2111L)	4
Genetics (BIOL 3166)	3
Physiology (BIOL 3272/3272L Or 3273/3273L)	4
Ecology (BIOL 3144)	3
Seminar (BIOL 4600)	1
*Subcellular topic	3
*Structure & Function	3
Advanced Physiology	3
	32 hours

*Students must choose one course each from each of the following sub-areas:

1. **Subcellular topics:** Cell Physiology (BIOL 4171), Molecular Biology (BIOL 4199), or Biochemistry (CHEM 4165). Advanced Cell Biology (BIOL 4000).

2. **Structure & Function:** Microbiology (BIOL 4250), Developmental Plant Anatomy (BIOL 4282), Animal Development (BIOL 4283), Histology (BIOL 4291), or Comparative Vertebrate Anatomy (BIOL 4293).

BACHELOR OF SCIENCE WITH AN OPTION IN ECOLOGY/ENVIRONMENTAL BIOLOGY

A B.S. degree in Biology with an option in Ecology/Environmental Biology consists of 44 hours of biology including all required courses for a B.S. degree in Biology plus Ecology Laboratory (BIOL 3144L), Biometry (BIOL 4121), and Environmental Problems (BIOL 4000). Each student must take at least four courses in one of the following sub-areas of environmental biology: Plant Ecology, Animal Ecology, Environmental Assessment, Aquatic Ecology, and General. The student should consult the Biology Department for the list of appropriate courses within each sub-area. Students are also recommended to take ESCI 1101 and Investigations in Biology (BIOL 3900) under the direction of one of the environmental biology faculty. Students are responsible for all chemistry, mathematics and physics requirements for a B.S. in Biology.

BACHELOR OF SCIENCE WITH AN OPTION IN MICROBIOLOGY

A major in Biology leading to a B.S. degree with an option in microbiology consists of 46 hours of biology including: [1] a core sequence of Plant (BIOL 1222 and 1222L), Animal (BIOL 1233 and 1233L), and Cell (BIOL 2111 and 2111L); [2] three area courses: Genetics (BIOL 4166), Ecology (BIOL 3144), and Physiology (BIOL 3272 or 3273); [3] seminar (BIOL 4600); [4] core microbiology courses: Microbiology (BIOL 4250 and 4250L), Microbial Physiology and Metabolism (BIOL 4257), Immunology (BIOL 4251 and 4251L), Pathogenic Bacteriology (BIOL 4256) and either Bacterial Genetics (BIOL 4255) or Molecular Biology (BIOL 4199); [5] six credit hours from the following list of electives (at least one of which must include a laboratory): Bacterial Genetics Lab (BIOL 4255L), The Fungi (BIOL 4223), Virology (BIOL 4259), Parasitology (BIOL 4233), Marine Microbiology (BIOL 4253), . Advanced Immunology (BIOL 5291), Bacterial Genetics or Molecular Biology if not taken as part of the "core", Monoclonal Antibodies (BIOL 4252), Recombinant DNA (BIOL 4168), Plant Biotechnology (BIOL 4184), Honors Research (Microbiology) (BIOL 4700, 4701), and Undergraduate Research (Microbiology) (BIOL 3900); and [6] CHEM 2132 with associated lab, PHYS 1101, 1102 and associated labs, and three additional hours of mathematics or computer science (excluding CSCI 1101) for a total of nine hours.

BACHELOR OF ART WITH AN OPTION IN MEDICAL TECHNOLOGY

Upon satisfactory completion of training at Schools of Medical Technology at Carolinas Medical Center or other regional hospitals that are affiliated with UNC Charlotte in the medical technology program, a student may receive a B.A. degree in Biology from UNC Charlotte. (It is possible to obtain a B.S. degree by careful planning with the advisor, although a B.S. degree will typically require a longer period of time than will the B.A. degree). The student must take Animal (BIOL 1233, 1233L), Cell (BIOL 2111, 2111L), Genetics (BIOL 3166), Microbiology (BIOL 4250), Immunology (BIOL 4251), Animal Physiology (BIOL 3273), Seminar (BIOL 4600), and 16 hours of chemistry [CHEM 1251, 1251L, 1252, 1252L, 2131, 2131L, and chemistry elective]; have a total of 24 hours of biology and a total of four laboratories in biology at UNC Charlotte; and have a 2.0 grade point average overall and in the major at the end of the junior year. The student must have a total of 90 hours including 24 hours of biology at UNC Charlotte; the remaining 30 hours and eight hours of biology will be accepted from the school of medical technology. The final 30 hours counted toward the degree and the last eight hours counted toward the major prior to entering a school of

medical technology must be taken at UNC Charlotte. Gaining admission to the school of medical technology is the responsibility of the student. Additional information is available from the Department of Biology.

TEACHER EDUCATION

The Department, in collaboration with the Department of Middle, Secondary, and K-12 Education, offers a program of biology and professional education courses to prepare students for 9-12 teacher licensure in North Carolina. Students interested in biology education should declare this interest during the first semester of the sophomore year to obtain appropriate advising and prepare for formal admission to a teacher education program. Students should contact the secondary education advisor, etc. for teacher education within the Department, as well as the Office of Student Academic Services in the College of Education for information about the requirements for admission to teacher education, coursework, and the culminating student teaching experience. Additional information about teacher education may be found in the College of Education section of this catalog.

HONORS PROGRAM IN BIOLOGY

The Honors Program is a research program for students majoring in Biology. Students interested in this program and who meet the admissions requirements should contact the Honors Coordinator in the Biology Department.

Admission. Students are invited to participate in the program during their junior year by the Department Honors Committee. To qualify, a student must have completed 60 semester hours, including at least 15 hours at UNC Charlotte. At least 36 of the completed hours must be in science and mathematics. Students must have a 3.4 overall grade point average. An Honors advisor and a supervisory committee are appointed for each student.

Courses. To graduate with Honors, a student must complete BIOL 4601 (Honors Seminar), BIOL 4700 (Honors Research I) and BIOL 4701 (Honors Research II) with a *B* or better in each of the three courses.

Certification Requirements. A cumulative grade point average of 3.4 or greater must be maintained. An Honors thesis is required and the student must present the results of their project in an appropriate forum.

COOPERATIVE EDUCATION PROGRAM

Students majoring in Biology may obtain practical work experience while pursuing their degrees. The Cooperative Education Program allows qualified students either to alternate semesters of academic study with semesters of work experience or to combine academic study and work during the same semester. The work experience is arranged by the University Career Center and must be approved by the Department of Biology. Placements are based on a student's academic interests and on the availability of appropriate positions and are carried out under the supervision of a Biology faculty member who serves as co-op advisor. Work semesters are followed by participation in the Biology Cooperative Education Seminar.

MINOR IN BIOTECHNOLOGY

Interdisciplinary

The minor in Biotechnology requires a minimum of 17 hours; including 11 hours in designated "core courses," with an overall GPA of 2.5 in those courses. For graduate study in Civil Engineering, graduate students are required to complete the same set of core courses, as well as additional graduate level engineering coursework. The core courses, offered through the three academic departments, are:

BIOL 4250	Microbiology (with lab) (4 hours)
CHEM 4165	Biochemistry (with lab) (4 hours)
CEGR 4141	Process Engineering (3 hours)

In addition to these core courses, students in the program must complete two additional courses, selected from the list below. Of these, one course must include a formal laboratory, and one course must be outside the student's home department. Additional courses may become available for this requirement.

Biology:

- Recombinant DNA (BIOL 4168)
- Molecular Biology (BIOL 4199
- Bacterial Genetics (BIOL 4255)
- Plant Biotechnology (BIOL 4184)
- Monoclonal Antibodies (BIOL 4252)

Chemistry:

- Biochemical Instrumentation (CHEM 4171)
- Modern Separation Techniques (CHEM 3112)
- Survey of Instrumental Methods of Analysis (CHEM 3113)
- Principles of Biochemistry II (CHEM 4166)

Engineering:

- Bioprocess Technology (CEGR 5141)
- Bioenvironmental Engineering (CEGR 5232)
- Process Chemistry (CEGR 4241)
- Environmental Risk Management (CEGR 5237)
- Environmental Biotechnology (CEGR 6144)
- Biotechnology & Bioengineering (MEGR/BIOL 5000)

Opportunities for research experiences are also offered through BIOL 3900 (Investigations), BIOL 4700/4701 (Honors Research), CHEM 4900 (Directed Undergraduate Research), CEGR 5991 (Graduate Research in Civil Engineering). Other non-required courses in the Departments of Physics and in the College of Business Administration may also be of value. In all cases, the student must complete all requirements for graduation with either the Bachelor's or Master's degree in their respective Department (Biology, Chemistry, or Civil Engineering). The Program also encourages internships and has arrangements with several local and regional biotechnology-related corporations to allow hands-on training.

Department of Chemistry

Chairperson: Charles H. Stone Professor DuBois; *Charles H. Stone Professor Emeritus:* Burson; *Professors:* Bush, Crosthwaite, Gonsalves, Ogle; *Professors Emeritus:* Allen, Daignault, Gibson, Kuppers, Walsh: *Associate Professors*: Brown, Donovan-Merkert, Jones, Mattingly, Poler, Risley, Sisk; *Assistant Professors*: Cooper, Hovick, Krueger, Rabinovich; *Lecturers*: Carlin, Dammann

Chemistry is a discipline fundamental to a wide variety of careers in industry, research, and the allied health fields. A strong foundation in chemistry is necessary for careers in medicine, molecular biology, biochemistry, industrial or government research, pharmacy, high school teaching, and chemical engineering. A background in chemistry may also be useful for careers in chemical sales, industrial management, business administration, and environmental management.

The Chemistry Department offers two B.S. degree programs and a research-based M.S. degree, which provide the background necessary for a career in industry or for further graduate studies in chemistry and related fields. In addition, three B.A. degree tracks in chemistry are available for students who plan to pursue a career in the chemical industry, teaching, or professional studies in areas such as medicine, dentistry, veterinary medicine, and optometry. The B.S. degree is approved by the American Chemical Society. "Suggested Schedules" for the B.S., B.A. and B.S./M.S. degree programs are available on the Chemistry Department web page at http://www.chem.uncc.edu. A minimum chemistry GPA of 2.0 is required in the B.S. and B.A. degree programs.

Programs leading to careers in medical technology, pharmacy, and chemical engineering are available in cooperation with other institutions.

BACHELOR OF SCIENCE

The B.S. degree is recommended for students planning to start careers as chemists with the baccalaureate degree and those preparing for graduate study in chemistry.

A major in Chemistry leading to the B.S. degree consists of a minimum of 45 semester hours of chemistry, including CHEM 1251, 1251L, 1252, 1252L (or 1253L), 2131, 2132, 2131L, 2132L, (or 2136L), 3111, 3141, 3142, 3141L, 3142L, 3695, 4111, 4121, one semester of 4695, one semester of 4696, two semesters of 4900, 4133 and either 4134 or 4135. (Credit toward the 45 hours required for the B.S. degree will not be given for both CHEM 4134 and 4135.) Related work in mathematics and physics must include MATH 1241, 1242, PHYS 2101, 2102, 2101L, and 2102L and two additional math courses: MATH 2241, 2242, 2164, 2171, 3125, or a Department-approved math course. Proficiency in a foreign language through the 2202 course level is recommended for the B.S. degree. It should be noted that some graduate programs require a proficiency in a foreign language. All students majoring in the B.S. program are required to satisfy the UNC Charlotte general degree language requirements.

Suggested Schedule of Required Courses: B.S. Degree in Chemistry

Freshman Year

CHEM	1251*(S)	3
CHEM	1251L*(S)	1
ENGL	1101	3
MATH	1241**(P)	3
FORL	1101***	3
CHEM	1252*(S)	3
CHEM	1252L*(S)	1
ENGL	1102	3
MATH	1242(P)	3
FORL	1102	3

Sophomore Year

CHEM	2131	3
CHEM	2131L	1
Select two: MATH 2241, 2242, 2164, 2171, 3125, or a Department approved math course		6
PHYS	2101	3
PHYS	2101L	1
COGE/Elective****		3
CHEM	2132	3
CHEM	2132L	1
PHYS	2102	3
PHYS	2102L	1
COGE/Electives****		7

Junior Year

CHEM	3111	4
CHEM	3141	3
CHEM	3141L	1
COGE/Electives		9
CHEM	3142	3
CHEM	3142L	1
CHEM	3695	1
CHEM	4111	4
COGE/Electives		6

Senior Year

CHEM	4121	4
CHEM	4695	1
CHEM	4900	1
COGE/Electives****		9
CHEM	4133	2
CHEM	4134 or 4135	2
CHEM	4900	1
CHEM	4696	1
COGE/Electives		9

The B.S. program is approved by the Committee on Professional Training of the American Chemical Society

** Students can receive credit by examination for CHEM 1251 and 1252.*

*** The initial mathematics course is based on placement criteria established by the Mathematics Department*

**** FORL 1100 may also need to be taken and can be taken as a replacement for an elective.*
***** 18 semester hours of electives must be used to meet COGE goals: GOAL I- 3 hours; GOAL III- 3 hours; GOAL V- 6 hours, GOAL VI- 6 hours. The other COGE GOALS are met by courses required for the B S degree.*

BACHELOR OF SCIENCE WITH OPTION IN BIOCHEMISTRY

Minimum of 44 semester hours of chemistry, including CHEM 1251, 1252, 1251L, 1252L (or 1253L), 2131, 2132, 2131L, 2132L (or 2136L), 3111, 3141, 3142, 3141L, 3142L, 3695, 4165, 4166, 4165L, 4111 or 4171, one semester of 4695, one semester of 4696 and two semesters of 4900 (or BIOL 3900 with special permission from the Department of Chemistry) culminating in a comprehensive written report; related work in mathematics, physics, and biology must include MATH 1241, 1242, PHYS 2101, 2102, 2101L, and 2102L, and BIOL 1233, 2111, and either 3166, 4171, 4199, or 3273 and two additional math courses: MATH 2241, 2242, 2164, 2171, 3125, or a Department-approved math course. The B.S. degree will require the completion of a minimum of 122 semester hours of credit. Proficiency in a foreign language through the 2202 course level is recommended for the B.S. degree. It should be noted that some graduate programs require a proficiency in a foreign language. All students majoring in the B.S. program (even those operating under the old general degree requirements) are required to satisfy the UNC Charlotte general degree language requirements.

Suggested Schedule of Required Courses: B.S. Degree in Chemistry/Biochemistry

Freshman Year

CHEM 1251*(S)..... 3
CHEM 1251L*(S).....1
ENGL 1101.....3
MATH 1242**(P).....3
FORL 1101***..... 3
CHEM 1252*(S)..... 3
CHEM 1252L*(S).....1
ENGL 1102.....3
MATH 1242(P).....3
FORL 1102.....3

Sophomore Year

CHEM 2131.....3
CHEM 2131L..... 1
Select two: MATH 2241, 2242, 2164, 2171, 3125, or a Department approved math course.....6
PHYS 2101.....3
PHYS 2101L..... 1
COGE/Elective****.....3

CHEM 2132.....3
CHEM 2132L.....1
PHYS 2102.....3
PHYS 2102L.....1
BIOL 1233.....3
COGE/Elective****.....3

Junior Year

CHEM 3111.....4
CHEM 4165.....3
CHEM 4165L..... 1
COGE/Electives..... 9

CHEM 3695.....1
CHEM 4166.....3
BIOL 2111.....3
COGE/Electives.....9

Senior Year

CHEM 3141.....3
CHEM 3141L.....1
CHEM 4695 (W,O).....1
CHEM 4900 or BIOL 3900****.....1
BIOL 3166, 3273, 4171, or 4199.....3
COGE/Electives.....6

CHEM 3142.....3
CHEM 3142L.....1
CHEM 4900.....1
CHEM 4696 (W,O).....1
COGE/Electives.....6
CHEM 4171 or 4111.....4

The B.S. program is approved by the Committee on Professional Training of the American Chemical Society if CHEM 4121 is also taken
**Students can receive credit by examination for CHEM 1251 and 1252.*
***The initial mathematics course is based on placement criteria established by the Mathematics Department*
**** FORL 1100 may also need to be taken and can be taken as a replacement for an elective.*
*****18 semester hours of electives must be used to meet COGE goals: GOAL I- 3 hours; GOAL III- 3 hours; GOAL V- 6 hours; GOAL VI- 6 hours. The other COGE GOALS are met by courses required for the B.S. degree.*
******BIOL 3900 with special permission of the Chemistry Department.*

BACHELOR OF ARTS

A major in Chemistry leading to the B.A. degree consists of a minimum of 33 semester hours of chemistry including completion of the requirements for one of the three tracks below in addition to the following core courses: CHEM 1251, 1251L, 1252, 1252L, 2125, 2131, 2131L, 2132, 2132L, 2141, 3111, 3695 and two semesters of 4695. Related work must include MATH 1241, 1242, and a complete sequence of physics courses selected from one of the following options: (A) PHYS 1101, 1101L, 1102, 1102L; (B) PHYS 2101, 2101L, 2102, 2102L; or (C) PHYS 1102, 1102L, 2101, 2101L. The B.A. curriculum can be tailored to fit the needs of students preparing for professional schools, a career in chemistry, and secondary teaching licensure.

Preprofessional. Students majoring in Chemistry who are planning future studies in medicine, dentistry, or other allied health professions should choose CHEM 4165 and 4165L and take as electives BIOL 1233 and BIOL 2111. At least one additional biology course at the 3000 or 4000 level is recommended.

Suggested Schedule of Required Courses: B.A. Degree for Students Planning to Attend Professional School

Freshman Year

CHEM	1251*(S)	3
CHEM	1251L*(S)	1
ENGL	1101	3
MATH	1241**(P)	3
FORL	1101***	3
CHEM	1252*(S)	3
CHEM	1252L*(S)	1
ENGL	1102	3
MATH	1242(P)	3
FORL	1102	3

Sophomore Year

CHEM	2131	3
CHEM	2131L	1
GOAL III (V)		3
GOALV (L)		3
BIOL	1233****	3
BIOL	1233L****	1
CHEM	2132	3
CHEM	2132L	1
GOAL V		3
Writing Intensive (W)		3
BIOL	2111****	3
BIOL	2111L****	1

Junior Year

CHEM	3111	4
PHYS	1101	3
PHYS	1101L	1
Electives		9
CHEM	2141	3
PHYS	1102	3
PHYS	1102L	1
Electives		9
CHEM 3695 (W)		1

Senior Year

CHEM 4165		3
CHEM 4165L		1
GOAL VI (X)		3
Electives		9
CHEM 4695 (W,O)		1
CHEM 2125		3
GOAL VI (C)		3
Electives		9
CHEM 4695 (W,O)		1

**Students can receive credit by examination for CHEM 1251 and 1252.*
*** The initial mathematics course is based on placement criteria established by the Mathematics Department*
**** FORL 1100 may also need to be taken and can be taken as a replacement for an elective.*
*****For Medical School and Allied Health Professional Schools*

Chemistry. Students planning to pursue employment in chemical industry should choose CHEM 3113 (or 4111).

Suggested Schedule of Required Courses: B.A. Degree for Students Planning for a Career in Chemical Industry

Freshman Year

CHEM	1251*(S)	3
CHEM	1251L*(S)	1
ENGL	1101	3
MATH	1241**(P)	3
FORL	1101***	3
CHEM	1252*(S)	3
CHEM	1252L*(S)	1
ENGL	1102	3
MATH	1242(P)	3
FORL	1102	3

Sophomore Year

CHEM	2131	3
CHEM	2131L	1
PHYS	1101	3
PHYS	1101L	1
Elective(s)		9
CHEM	2132	3
CHEM	2132L	1
PHYS	1102	3
PHYS	1102L	1
Writing Intensive (W)		3
Elective(s)		6

Junior Year

CHEM	3111	4
GOAL III (V)		3
GOAL V (L)		3
Electives		5
CHEM	2141	3
CHEM	2125	3
CHEM	3695 (W)	1
Electives		6

Senior Year

GOAL V (A)		3
GOAL VI (X)		3
Electives		8
CHEM 4695 (WO)		1
CHEM 3113 (or 4111)		4
GOAL VI (C)		3
Electives		6
CHEM 4695 (W,O)		1

** Students can receive credit by examination for CHEM 1251 and 1252.*
*** The initial mathematics course is based on placement criteria established by the Mathematics Department*
**** FORL 1100 may also need to be taken and can be taken as a replacement for an elective.*

Teacher Licensure. To meet North Carolina requirements for secondary (grades 9-12) teaching licensure in Chemistry, students must complete at least 33 hours in chemistry including: CHEM 1251, 1251L, 1252, 1252L, 2131, 2131L, 2132, 2132L, 2141, 2125, 3111, 3695, 4165, 4165L, and two semesters of 4695. Students

must also complete 12 hours of physics (including PHYS 1101, 1101L, 1102, 1102L, and a physics elective), six hours of calculus (MATH 1241 and 1242), and four hours of a biology or earth science course with laboratory (BIOL 1110 + 1110L or ESCI 1200 + 1200L). Students seeking teaching licensure should consult a co-advisor in the Department of Middle, Secondary, and K-12 Education in the College of Education for detailed planning of their professional education coursework. Licensure applications are the responsibility of the student and the Office of Student Academic Services in the College of Education.

Suggested Schedule of Required Courses: B.A. Degree For Students Seeking Secondary Teaching Licensure

Freshman Year

CHEM	1251*(S)	3
CHEM	1251L*(S)	1
ENGL	1101	3
MATH	1241**(P)	3
FORL	1101	3
CHEM	1252*(S)	3
CHEM	1252L*(S)	1
ENGL	1102	3
MATH	1242(P)	3
FORL	1102	3
Elective***		3

Sophomore Year

CHEM	2131	3
CHEM	2131L	1
PHYS	1101	3
PHYS	1101L	1
EDUC	2100(C)	3
SPED	2100	2
GOAL V (L)		3
CHEM	2132	3
CHEM	2132L	1
PHYS	1102	3
PHYS	1102L	1
EDUC	2104	3
HIST	1100(V,X)****	3
CHEM	2125	3

Junior Year

CHEM	3111	4
GOAL V (A)		3
EDUC	3141	3
EDUC	3150	3
Physics Elective		4
BIOL	1110 (or ESCI 1200)	3
BIOL	1110L (or ESCI 1200L)	1
CHEM	2141	3
READ	3255(W)	3
EDUC	3151	3
CHEM	3695(W)	1

Senior Year

CHEM	4165	3
CHEM	4165L	1
CHEM	4695(W)	1
EDUC	3142	2
EDUC	3251	3
SPED	3290	2
HPKD	3152	2
SECD	3441	15
CHEM	4695(W,O)	1

**Students can receive credit by examination for CHEM 1251 and 1252.*
*** The initial mathematics course is based on placement criteria established by the Mathematics Department.*
**** FORL 1100 may also need to be taken and can be taken as a replacement for an elective.*
***** Another course could be used in place of HIST 1100 to satisfy COGE GOALS III (V) and VI (X) simultaneously.*

BACHELOR OF ARTS WITH AN OPTION IN MEDICAL TECHNOLOGY

A student majoring in Chemistry may complete the departmental requirements for the B.A. degree in three years. Upon satisfactory completion of training in medical technology at a school of medical technology that has been approved by the Accrediting Agency for Clinical Laboratory Science for the Committee on Allied Health Education and Accreditation and UNC Charlotte, the student may receive a B.A. degree in Chemistry from UNC Charlotte. Gaining admission to an approved school of medical technology is the responsibility of the student. A maximum of 30 hours will be accepted from the school of medical technology. Four of these hours will apply toward the requirements for the major in Chemistry. The student must have at least a 2.0 grade point average, overall and in the major, at the end of the junior year. The final 30 hours counted toward the degree and the last 12 hours counted toward the major prior to entering a school of medical technology must be taken at UNC Charlotte. The student may obtain information from the departmental advisor concerning those Schools of Medical Technology at Carolinas Medical Center or Presbyterian Hospital in Charlotte, which are affiliated with UNC Charlotte in this program. Individual applications for admission to a particular school of medical technology must be submitted.

Suggested Schedule of Required Courses: B.A. Degree, Medical Technology Option

Freshman Year

CHEM	1251*(S)	3
CHEM	1251L*(S)	1
ENGL	1101	3
MATH	1103**(P)	3
BIOL	1233	3
BIOL	1233L	1
COGE/Elective****		3
CHEM	1252*(S)	3
CHEM	1252L*(S)	1
ENGL	1102	3
MATH	1241(P)	3
COGE/Elective****		3

Sophomore Year

CHEM	2131	3
CHEM	2131L	1
MATH	1242(P)	3
PHYS	1101	3
PHYS	1101L	1
FORL	1101***	3
CHEM	2132	3
CHEM	2132L	1
FORL	1102	3
PHYS	1102	3
PHYS	1102L	1
COGE/Elective***		3

Junior Year

CHEM	3111	4
BIOL	4250	3
BIOL	4250L	1
COGE/Electives***		9
CHEM	3112 (or CHEM 3113)	4
BIOL	3166	3
BIOL	3166L	1
BIOL	4251	3
BIOL	4251L	1
COGE/Electives****		3

Minimum 90 semester hours required.

Senior Year is completed at an approved school of medical technology.

** Students can receive credit by examination for CHEM 1251 and 1252*

*** The initial mathematics course is based on placement criteria established by the Mathematics Department.*

**** FORL 1100 may also need to be taken and can be taken as a replacement for an elective.*

***** 21 semester hours of electives must be used to meet COGE goals: GOAL I- 6 hours; GOAL III- 3 hours; GOAL V- 6 hours; GOAL VI- 6 hours. The other COGE GOALS are met by courses required for the B.A. degree.*

MINOR IN CHEMISTRY

A minor in Chemistry consists of 23 semester hours of chemistry including CHEM 1251, 1251L, 1252, 1252L, 2131, 2131L, 2132, 2132L, either 3111 or 4171, and three additional semester hours at the 2000 level or above. A minimum GPA of 2.0 in the minor is required. Credit toward the 23 hour total will not be given for either CHEM 4695 or 4900. Special topics courses such as CHEM 3090 and CHEM 5090 may be included with prior departmental approval.

Interdisciplinary Minor in Biotechnology. Please refer to the Biology section of this catalog for a detailed description of the interdisciplinary minor in Biotechnology.

HONORS PROGRAM IN CHEMISTRY

This program is intended primarily for chemistry majors. It is a research-oriented program. Details are available from the Chemistry Department.

Admission. Consideration for admission to the program may be initiated by the student or by any faculty member. The Honors Committee of the Chemistry Department will formally approve admission. The student will formally enter the Honors Program at the beginning or halfway through his/her junior year.

Courses. Independent research and seminars.

Certification Requirements. To obtain a degree with Honors in Chemistry, a student must successfully complete at least three hours of independent research at the Honors level, one semester of the senior seminar at the Honors level, and prepare and successfully defend an Honors thesis based on research.

COOPERATIVE EDUCATION EXPERIENCE

Students majoring in Chemistry may obtain practical work experience in chemistry before graduation by participating in the Chemistry Cooperative Education Experience any time after the completion of sophomore year and CHEM 2132. A minimum GPA of 2.5 overall and 2.5 in chemistry is required. At least two semesters of work assignments must be completed concurrent with enrollment in CHEM 3500. Advisors will assist students to design a schedule that accommodates both work assignments and the upper-division chemistry courses which are normally offered on alternate semesters. Experiences are arranged in coordination with the University Career Center.

Accelerated early-entry into the Chemistry M.S. Program

The Early-Entry program leads to completion of all requirements for the B.S. and M.S. degrees in only five academic years and one or two summers. In this program, students complete requirements for the B.S. degree and begin graduate coursework and research in their senior, or fourth, year. The Chemistry Early-Entry program is accelerated; that is, up to six credit hours may be taken at the graduate level and double counted towards both the undergraduate and graduate degrees. Students may leave the program after four years with the B.S. degree, or they may complete an additional academic year and summer of full-time study and research to earn both the B.S. and M.S. degrees in Chemistry.

B.S. students may be admitted to the M.S. program without entrance examinations if they have a 3.2 overall GPA and at least 3.0 in their chemistry, mathematics, and physics courses, have completed the standard B.S. curriculum through at least Physical Chemistry, and have taken the Graduate Record Examination. Students should consult with the Graduate Coordinator about their eligibility for this program and to discuss requirements for selection of a research advisor during their junior year.

The application process and all the required documentation (e.g., test scores, transcripts, letters of recommendation) are the same for Early-Entry students as for other applicants to the program. The status of the accepted early-entry applicant is provisional pending the

award of the baccalaureate degree. Early-Entry M.S. students will be expected to complete the requirements for the undergraduate degree by the time they have completed 15 hours of graduate work. Students should consult with the Graduate Coordinator about their eligibility for this program and to discuss requirements for selection of a research advisor (typically done in the second semester of their junior year).

Suggested Schedule of Required Courses: B.S. - M.S. Degrees ¤

Freshman Year

CHEM	1251*	3
CHEM	1251L	1
ENGL	1101	3
MATH	1241**	3
FORL	1101***	3
CHEM	1252*	3
CHEM	1252L	1
ENGL	1102	3
MATH	1242**	3
FORL	1102	3

Sophomore Year

CHEM	2131	3
CHEM	2131L	1
Select two: MATH 2241, 2242, 2164, 2171, 3125, or a Department approved math course		6
PHYS	2101	3
PHYS	2101L	1
COGE/Elective****		3
CHEM	2132	3
CHEM	2132L	1
PHYS	2102	3
PHYS	2102L	1
COGE/Electives****		6

Junior Year - Consider joining a research group as soon as possible by taking at least one credit hour/semester.

CHEM	3111	4
CHEM	3141	3
CHEM	3141L	1
COGE/Electives****		6
CHEM	4900	1

See the Graduate Coordinator for advising.

CHEM	3695 (W)	1
CHEM	3142	3
CHEM	3142L	1
CHEM	4111	4
COGE/Electives****		6
CHEM	4900	1

Senior Year - Apply to Graduate School for accelerated early-entry to Chemistry MS by November 1st.

CHEM	4121	4
CHEM	4695 (WO)	1
CHEM	4900	2
COGE/Electives****		9
CHEM	5133	2
CHEM	5134 or 5135	2
CHEM	4900	1
CHEM	6900	1
CHEM	4696 (WO)	1
COGE/Electives****		9

(Any combination of 5000 level courses replacing 4000 level courses will work.)

Fifth Year

First Summer Session		
CHEM	6900	5
Second Summer Session		
CHEM	6900	5
Fall		
CHEM	6900	4
CHEM	6682	1
CHEM	6xxx	3
Spring		
CHEM	6900	4
CHEM	6682	1
CHEM	6xxx	3

¤ The B.S. degree program is approved by the Committee on Professional Training of the American Chemical Society.
** Students can receive credit by examination for CHEM 1251 and 1252.*
*** The initial mathematics course is based on placement criteria established by the Mathematics Department*
**** FORL 1100 may also need to be taken and can be taken as a replacement for an elective.*
***** 18 semester hours of electives must be used to meet COGE goals: GOAL I- 3 hours; GOAL III- 3 hours; GOAL V- 6 hours; GOAL VI- 6 hours. The other General Education requirements are met by the suggested courses for the B.S. and B.A. degrees.*

Department of Communication Studies

Chairperson: Professor R. W. Leeman; *Professor:* Trauth; *Associate Professor:* Crane; *Assistant Professors*: Drummond, Duthler-Picherit, Freitag; *Lecturers:* Hanson, Kuntzman, C.B. Leeman, Long

The Communication Studies program offers training in the practice and theory of communication across a variety of contexts. Among these are public communication, interpersonal communication, small group communication, organizational communication, public relations, and mass communication. In addition, students examine specific types of communication such as argumentation, debate, and persuasion.

BACHELOR OF ARTS

Admission Requirements. Students matriculated at UNC Charlotte and planning to change to or declare Communication Studies as their major must have an overall GPA of at least 2.0, and no grade less than *C* in COMM 1101 or its equivalent and COMM 2100 or its equivalent.

Transfer students from other institutions must meet all general requirements for admission to the University. Acceptance into the Communication Studies major requires that they have no grade less than a *C* in COMM 1101 or its equivalent, and COMM 2100 or its equivalent.

Matriculated and transfer students who do not meet requirements for admission to the program because of special circumstances may petition the Department of Communication Studies for acceptance into the program.

Degree Requirements. The program leading to the Bachelor of Arts degree in Communication Studies is a 120 semester hour program, including 54 hours in CORE, concentration, and work requirements in the major, and 32-53 hours in General Education requirements for the baccalaureate degree.

Communication Studies majors must also complete the 2201 level course or the equivalent in a modern language other than English that uses the Latin Alphabet (e.g., French, German, Italian, Portuguese, Spanish) OR the 1202 course or the equivalent in a modern language that does not use the Latin Alphabet (e.g., Arabic, Chinese, Greek, Japanese, Russian). Non-native English speakers may complete the foreign language requirement by passing ENGL 1101 and ENGL 1102 or the equivalent.

Core Requirements (24 hours)

All students complete 24 hours of CORE requirements designed to provide a thorough understanding of fundamental communication processes. The CORE requirements are structured into four major categories:

General Theory/Skills (12 hours)
COMM 1101 Introductory Speech (3)
COMM 2100 Intro. to Communication Theory (3)
COMM 2101 Introduction to Rhetorical Theory (3)
COMM 3101 Persuasion (3)

Research Methodology (6 hours)
STAT 1222 Introduction to Statistics (3)
COMM 3100 Communication Research Methods (3)

Macro-Context (3 hours)
COMM 3120 Communication & Mass Media (3) **or**
COMM 3130 Communication & Public Advocacy (3) **or**
COMM 3141 Organizational Communication (3)

Micro-Context (3 hours)
COMM 2103 Argumentation & Debate (3) **or**
COMM 2105 Small Group Communication (3) **or**
COMM 2107 Interpersonal Communication (3)

Concentration Requirements (12 -21hours)

Students must also complete 12-21 hours of course work in a specific concentration of study. Courses that are required within a particular concentration or used as electives within the concentration cannot simultaneously be used to fulfill CORE requirements. The concentrations are designed to provide students with the opportunity to pursue more extensive study in the communication context most relevant to their professional and social goals. Four concentrations of study are offered:

Mass Media (12 hours)

The Mass Media concentration is designed for students interested in the development and critical analysis of the media as a cultural force. Contemporary issues in media criticism are explored. Students may also receive limited exposure to media production.

Students choosing this concentration complete the following courses:

COMM 3120 Communication and Mass Media (3)
COMM 4101 Media and the Law (3)

Students will complete six hours selected from the following courses:

ARTA 2219 History of Photography (3)
COMM 2120 Black Images in the Media (3)
COMM 3121 Mass Communication and Society (3)
COMM 3050 Topics in Communication (3)*
COMM 3880 Independent Study (1-3)*
COMM 4102 Federal Interpretation of the First Amendment (3)
COMM 4410 Professional Internship (3)*
ENGL 2106 Film Criticism (4)
FORL 3160 European Cinema (3)
FREN 4050 Topics in French Film (3)
GERM 3160 Survey of German Films (3)
HIST 3000 American History & Culture through Film (3)
JOUR 2160 Introduction to Journalism (3)
JOUR 3160 News Writing (3)
JOUR 3161 News Editing (3)
POLS 3104 Mass Media and Government (3)
POLS 3107 Political Influence of the Media (3)
RELS 3212 Film and Identity (3)
SOCY 2112 Popular Culture (3)
SPAN 4050 Topics in Film of Peninsular Spain (3)
SPAN 4050 Topics in Latin American Film (3)

** with approval of advisor*

Organizational Communication (12 hours)

The Organizational Communication concentration is designed for students whose careers will benefit from an understanding of the communication processes that occur within organizational contexts. Students explore both the theory and practice of organizational communication.

All students choosing this concentration complete the following courses:

COMM 3141 Organizational Communication (3)
COMM 4141 Advanced Organizational Communication (3)

Students select three hours from the following:

COMM 2105 Small Group Communication (3)
COMM 2107 Interpersonal Communication (3)

Students select three hours from the following:

AAAS	2201	Introduction to Human Relations (3)
ANTH	4120	Intercultural Communication (3)
COMM	3050	Topics in Communication (3)*
COMM	3880	Independent Study (1-3)*
COMM	4410	Professional Internship (3)*
ENGL	2116	Technical Communication (3)
MGMT	3160	Business Communication (3)
PHIL	2175	Professional Ethics (3)
PSYC	2171	Introduction to Industrial/Organizational Psychology (3)
PSYC	3114	Motivation (3)
SOCY	4112	Sociology of Work (3)
SOCY	4115	Sociology of Corporations (3)

** with approval of advisor*

Communication and Public Advocacy (12 hours)

The Communication and Public Advocacy concentration is designed for those students desiring a well-developed background in the use, theory, construction, and analysis of public messages. The course of study provides training in individual public communication skills and provides a foundation for the analysis and evaluation of advocacy discourse.

All students choosing this concentration complete the following courses:

COMM	2102	Advanced Public Speaking (3)
COMM	2103	Argumentation & Debate (3)
COMM	3130	Communication & Public Advocacy (3)

Students select three hours from the following:

COMM	3050	Topics in Communication (3)*
COMM	3131	African-American Oratory (3)
COMM	3403	Debate Practicum (2)

(May be repeated but no more than 3 hours will apply to meeting this elective requirement.)

COMM	3880	Independent Study (1-3)*
COMM	4410	Communication Internship (3)*
ENGL	4165	Language and Culture (3)
POLS	3104	Mass Media and Politics (3)
POLS	3110	North Carolina Student Legislature (3)
POLS	3163	Model United Nations (3)

* *with approval of advisor*

Public Relations (12 hours)

The Public Relations concentration is designed to provide students with a general background in public relations. Students examine both the theory and practice of public relations.

Students choosing this concentration complete the following courses:

JOUR	2160	Introduction to Journalism (3)
COMM	3145	Foundations of Public Relations (3)
COMM	3245	Public Relations Writing (3)
COMM	4145	Public Relations Lab (3)
COMM	4410	Professional Internship (3)

Students select six hours from the following:

COMM	2102	Advanced Public Speaking (3)
COMM	3050	Topics in Communication Studies (3)*
COMM	3141	Organizational Communication (3)
COMM	3880	Independent Study (3)*
COMM	4101	Media and the Law (3)
COMM	4141	Advanced Organization Communication (3)
COMM	4410	Professional Internship (3)*
ENGL	2116	Technical Communication (3)
JOUR	3160	News Writing (3)
JOUR	3161	News Editing (3)
JOUR	3162	Feature Writing (3)

** with approval of advisor*

Related Course Work (9-18 hours)

All students in the Mass Media, Organizational Communication, and Public Advocacy tracks must complete 18 hours of related course work excluding any courses applied to Core Requirements or Track requirements. Students in the Public Relations track must complete nine hours of related course work excluding any courses applied to Core Requirements or requirements within that track. All related course work must be approved by the student's advisor. An approved second major or a minor may be used to satisfy this requirement.

COMMUNICATION STUDIES MINOR

The minor in Communication Studies consists of 21 semester hours, which must include: two core courses, COMM 1101 (Introductory Speech) and COMM 2100 (Communication Theory); a required course within the track of study; and an additional 12 semester hours to be selected from a list of approved courses. Additional electives are possible with prior approval. COMM 3050 (Topics in Communication Studies), and COMM 3880 (Independent Study), may be included as part of the 12 hours of electives with prior approval of the Departmental Chairperson, although these courses may not be substituted for a required course. A maximum of six hours of electives may be cross-applied between tracks for students pursuing double minors. Students must attain an overall GPA of 2.0 in all coursework within the minor.

In addition, students must fulfill General Education Requirements and requirements for their major. Students planning to declare a Communications Studies minor should consult with the Departmental Chairperson.

TRACKS WITHIN THE MINOR

Mass Media is a track of study designed for students interested in the development of the media as a cultural force and contemporary issues in media criticism. In addition to COMM 1101 and 2100, each student must take COMM 3120, and 12 hours of electives selected from: ARTA 2219;COMM 3050*, 3101, 3121, 3880*, 4101, 4102, 4410 (limit three hours); FORL 3160; FREN 4050; GERM 3160; HIST 3000; JOUR 2160, 3160, 3161; POLS 3104, 3107; RELS 3212; SOCY 2112; SPAN 4050.

Organizational Communication is a track of study designed for students anticipating careers involving communication in organizational settings. In addition to COMM 1101 and 2100, each student must take COMM 3141, and 12 hours of electives selected from: AAAS 2201; ANTH 4120; COMM 2105, 2107, 3050*, 3101, 3880*, 4141, and COMM 4410 (limit three hours); ENGL 2116; MGMT 3160; PHIL 2175; PSYC 2171, 3114; SOCY 4112, 4115.

Public Advocacy is a track of study designed for those students seeking a well-developed background in the general theory and practice of public communication. In addition to COMM 1101 and 2100, each student must take COMM 3130 and 12 hours of electives selected from: COMM 2101, 2102, 2103, 3050*, 3101, 3131, 3403 (limit 4 hours), 3880*, 4410 (limit three hours); POLS 3104, 3107, 3110, 3163.

Public Relations is a track of study designed for students anticipating careers in the public relations context. The track emphasizes understanding the theory and practice of the role of public relations in society. In addition to COMM 1101 and 2100, each student must take COMM 3145, JOUR 2160, and nine hours of electives selected from: COMM 2102, 3050*, 3101, 3141, 3245, 3880*, 4101, 4141, 4145, 4410 (limit three hours); ENGL 2116, JOUR 3160, 3161, 3162; POLS 3103

JOURNALISM MINOR

The minor in Journalism provides an introduction to journalism areas such as writing, editing, feature writing, layout and design, and related communication and media issues. It is designed for students who have completed ENGL 1101 and 1102. The minor consists of 18 hours of coursework including:

JOUR 2160 Introduction to Journalism
JOUR 3160 News Writing
JOUR 3161 News Editing

The nine (9) hours of elective coursework needed to complete the minor may be chosen from:

ENGL 4008 Writing for Publication (3)
ENGL 4204 Expository Writing (3)
JOUR 3162 Feature Writing (3) (or other JOUR courses offered by the Communication Studies Department.)
JOUR 3050 Topics in Journalism (3)
ARTG 2181 Graphic Design I (3)
ARTT 2191 Photography I (3)
ARTT 3183 MacIntosh for Graphic Design (3)
COMM 3120 Communication and the Mass Media
COMM 3050 Topics in Communication Studies (3)*
COMM 3880 Independent Study (1-3)*
COMM 4101 Media and the Law (3)
COMM 4102 Federal Interpretation of the First Amendment (3)
COMM 4410 Professional Internship (3)*
POLS 3103 Public Opinion and the Mass Media
POLS 3104 Politics and the Mass Media

** with approval of advisor*

Note: Students may count JOUR 3160, 3161, and 3162 toward the major in English **or** toward the minor in Journalism; students may *not* count the same courses toward both.

With their advisor's approval, students in the Communication Studies major may count as related course work any course used to fulfill requirements for the Journalism minor as long as that course is not simultaneously being used to fulfill either *CORE* or *TRACK* requirements of the major.

Department of Criminal Justice

Chairperson: Professor Arrigo; *Professors*: Dean, Friday; *Associate Professors*: Bjerregaard, Blowers, Coston, Lord; *Assistant Professors*: Brennan; *Instructors*: Beeman, Exum

Undergraduate students pursuing the academic study of the criminal justice system, a career in the criminal justice field, or preparation for graduate study may select the criminal justice curriculum leading to a Bachelor of Arts degree. Transfer students must complete 31 hours of criminal justice course work unless they have completed the equivalent of CJUS 1100, CJUS 2000, CJUS 2154, CJUS 2102, or CJUS 2120 at another institution. In this case, these classes are waived. The Department also offers a minor. Students may enroll in the B.A. program on either a full-time or part-time basis. Evening classes are scheduled to accommodate part-time students.

Transfer students who have an A.A.S. degree in a Criminal Justice related discipline may be awarded a maximum of 36 semester hours of credit for criminal justice coursework completed with a grade of *C* or better. However, they must still complete an additional 15 semester hours of criminal justice coursework. They will also receive credit for courses that fulfill UNC Charlotte General Education Requirements if the completed courses are part of an approved college transfer curriculum.

The Department also offers a Master of Science degree program in Criminal Justice.

BACHELOR OF ARTS

A major in Criminal Justice requires STAT 1222 and 31 semester hours of criminal justice courses, including CJUS 1100 (Introduction to Criminal Justice), CJUS 3100 (Criminal Justice Theory), CJUS 3101 (Research Methods in Criminal Justice), and *one* course from *each* of the following areas:

Law Enforcement Area
CJUS 2000 - Introduction to Law Enforcement
CJUS 3141 - Law Enforcement Behavioral Systems
CJUS 3200 - Security & Loss Prevention

Corrections Area
CJUS 2154 - Introduction to Corrections

CJUS 3150 - Community Corrections
CJUS 3151 - Institutional Corrections
CJUS 3153 - Juvenile Corrections

Legal Area
CJUS 3102 - American Criminal Courts
CJUS 3110 - Criminal Justice and the Law
CJUS 3111 - Criminal Procedure
CJUS 3121 - Juvenile Law
CJUS 3152 - Correctional Law

A minimum of a *C* average in all criminal justice coursework and at least a *C* in CJUS 1100, 3100 and 3101 are required.

While not required, students are encouraged to participate in internship programs available through the Department. Internships provide opportunities to combine theory and practice in a realistic setting, and to make more judicious career decisions. Consult the Department of Criminal Justice for a suggested schedule to complete the B.A. degree with a major in Criminal Justice.

Criminal Justice majors may satisfy the foreign language requirement by completing the 2201 level course (or the equivalent) in a modern language other than English that uses the Latin alphabet (e.g., French, German, Italian, Portuguese, Spanish) OR the 1202 course (or the equivalent) in a modern language that does not use the Latin alphabet (e.g., Arabic, Chinese, Greek, Japanese, Russian). Approved computer language courses or American Sign Language may be substituted by permission of the Department.

CRIMINAL JUSTICE MINOR

A minor in Criminal Justice is available to all undergraduates except criminal justice majors and requires 18 approved semester hours including: CJUS 1100 and 3100, and 12 semester hours of upper-division criminal justice electives. A grade point average of at least a 2.0 is required, including at least a grade of *C* in CJUS 1100 and 3100.

Department of Dance and Theatre

Interim Chairperson: Professor McGavran; *Professors:* Huskey, Sofras; *Associate Professors*: Croghan, Hubbard, Neil, *Assistant Professors*: Pizzato, Ruggaber, Vesce, Webster; *Lecturers*: Anich, Fears, Fitch, Reiss

The Department of Dance and Theatre offers programs leading to the Bachelor of Arts (B.A.) Degree in Dance, Theatre, Dance Education and Theatre Education, minors in Dance and Theatre; and courses of interest to the general university student.

The curricula include courses in acting, directing, dance technique and style (modern dance, ballet, jazz), choreography, and design (costume, scenic, lighting, sound). Courses in history, play analysis, and dance criticism provide the theoretical foundation of the liberal arts degree. Specialized pedagogy classes and laboratory experiences are included in the dance and theatre education degree programs which lead to K-12 teacher licensure in North Carolina reciprocal to South Carolina.

All majors include a departmental core curriculum consisting of Cornerstone and Capstone Seminars, Production and Performance Practica, Exploration of Voice and Movement, and Elements of Design for the Stage. Students complete their majors by taking the specific dance, dance education, theatre, or theatre education discipline core and selected elective courses. The electives can be focused in the student's area of interest--performance, design, directing, choreography, theory, administration/ management or pedagogy.

The Department presents informal productions; student directed and choreographed works; fully staged plays, musical theatre works; dance concerts; and original collaborative works. Auditions are open to all University students. Productions and classes are held in the Rowe Arts Building which contains two theatres, two dance studios, an acting studio, design studio, computer lab, shops; and specialized facilities and offices.

A major in Dance, Dance Education, Theatre, or Theatre Education provides a liberal arts education. The skills and attributes developed in dance or theatre are essential to a professional arts career and they are applicable to all life endeavors. Motivation, concentration, self-confidence, creativity, flexibility, problem solving, communication skills, and team work are enhanced through the study of dance and theatre.

Graduates may move directly into the profession as performers, directors/choreographers, designers or teachers. More commonly, they seek advanced training in graduate programs or apprenticeships with professional organizations.

DANCE. A major in Dance leading to the B.A. degree consists of 40 semester hours including 11 hours in the departmental core (DATH 1100, 1200, 1600, 2401, 2402, 3600); 20 hours in the dance core (DANC 1201, 1202, 2201, 2216, 2226, 3101, 3102); and seven hours of electives. These courses must be completed with no more than one grade of *D* and a GPA of at least 2.5.

A minor in Dance requires 22 semester hours including: DATH 1100, 1200, 2401, and 2401 or 2402; DANC 1101, 1201, 2226 and 6 hours of dance electives.

THEATRE. A major in Theatre leading to the B.A. degree consists of 40 semester hours including 11 hours in the departmental core (DATH 1100, 1200, 1600, 2401, 2402, 3600); 21 hours in the theatre core (THEA 1209, 1203, 1205, 2101, 2216, 3101, 3102); and eight elective hours. These courses must be completed with no more than one grade of *D* and a GPA of at least 2.5.

A minor in Theatre requires 22 semester hours including DATH 1100, 1200, 2401 and 2401L or 2402; THEA 2101, 3101 or 3102, and eight hours of theatre electives.

DANCE EDUCATION: (K-12). The major in Dance Education leads to (K-12) teacher licensure. In addition to completing the coursework for the major in Dance, Dance Education students take DANC 3230 as one of their dance electives and complete professional education requirements (DANC 3227, 3227L, 3257, 3257L, 3467; EDUC 2100, 3160; SPED 2100, 3290; READ 3255, TECH 4100). Students seeking dance licensure should plan to declare the dance education major by the end of the sophomore year. A later decision to seek licensure may result in a delayed graduation date. A GPA of 2.75 is required for admission to student teaching. Licensure applications are the responsibility of the student and the Office of Student Academic Services in the College of Education.

THEATRE EDUCATION: (K-12). The major in Theatre Education leads to (K-12) teacher licensure. In addition to completing the coursework for the major in Theatre, Theatre Education majors take THEA 2217 and 2218 as theatre electives and complete professional education requirements (THEA 1102, 1109, 2409, 2410, 3220, 3467; EDUC 2100; MDSK 3160; SPED 2100; EIST 4100; and COMM 2105 or HUSV 3050). Students seeking theatre licensure should plan to declare the theatre education major by the end of the sophomore year. A later decision to seek licensure may result in a delayed graduation date. A GPA of 2.75 is required for admission to student teaching. Licensure applications are the responsibility of the student and the Office of Student Academic Services in the College of Education.

PROFESSIONAL TRAINING CERTIFICATE IN DANCE:

In conjunction with Charlotte's professional dance company, North Carolina Dance Theatre (NCDT), the University offers a Professional Training Certificate in Dance for those specializing in ballet performance. The partnership provides the student an association with a professional dance company while earning a college degree. The sixteen credit hours earned in the Certificate are included in the requirements for the baccalaureate degree. Pre-college credit is also available to high school students.

Open by audition to a student in any major, the two-year Professional Training Certificate in Dance provides training with expert teachers at DancePlace, the official school of North Carolina Dance Theatre. Rehearsal and performance opportunities with the company; the second company, NCDT 2; or the DancePlace performing group, Student Ensemble; put students in contact with internationally acclaimed choreographers. North Carolina Dance Theatre is an exceptional company whose Artistic Director, Jean-Pierre Bonnefoux and his Associate Directors, Patricia McBride and Jerri Kumery, include both classical and contemporary works in the repertory.

ATTENDANCE POLICY

Dance and Theatre students are expected to attend all scheduled Dance and Theatre Department classes. Specific attendance policy will be listed on each course syllabus.

Department of English

Chairperson: Professor Knoblauch; *Bonnie E. Cone Distinguished Professor in Teaching*: Boyd H. Davis; *Professors*: Brannon, Jacoby, Govan, Lunsford, McGavran, Moss, Shealy, Watson, West; *Associate Professors*: Amante, Bosley, Connolly, C. Davis, Gardner, Gatlin, R. Grey, Jackson, McNair, Morgan, Pereira, Richey, Thiede, Wickliff; *Assistant Professors*: Bongartz, Leak, McVey, Rudes; *Lecturers*: Brown, Daidone, Eckard, L. Grey, Hutchinson, Lazenby, Rothwell, Settle, Stallings, Townsend, Tyree; *Emeritus Professors*: Burne, Carver, Mason, Moose, Smith, Varnas; *Emeritus Associate Professors*: Harper, Shapiro.

Students who do not major in English but plan to take courses in english, for pleasure or in order to build their skills with language, should consult the Department about the possibility of a minor in English, or Technical/Professional Writing or African American Literature.

BACHELOR OF ARTS

A major in English leading to the B.A. degree consists of 33 semester hours of coursework beyond the six hours in composition (usually 1101 and 1102) that are part of the General Education requirements. Required courses include ENGL 2100 and 3100, which are prerequisites for any other 3000 or 4000 level courses; one survey course in British Literature, one in American Literature, and one in either British or American (3000 level); one course in language/linguistics (above 2000 level); and five elective courses in english, two of which may be at the 2000 level and two of which must be at the 4000 level. A GPA of 2.0 or better in all English courses is required for graduation.

The English major also requires completion of COMM 1101; competency in a foreign language through the intermediate level, certified either through placement exam or coursework (2000 level); and a minor established at UNC Charlotte or an individually designed minor consisting of a minimum of 18 semester hours in coursework selected from other departments designed to supplement and strengthen the goals of the major, approved by the student's advisor and the department. Students with a second major in another department will be considered automatically to have satisfied the minor requirement, as will students who complete teacher licensure requirements.

Internships. Internships in the community and at the University are available for upper-level English majors. Contact the English Department for further information.

English Department Class Attendance Policy. Students are expected to attend all scheduled English Department classes. Specific attendance policy for each section is left to the teacher.

Awards. The Department gives awards each spring (usually to senior English majors): the Margaret Bryan Award for excellence in scholarship; the Intimate Bookshop Creative Writing Awards; the Aristidis Katopodis Award for excellence in the study of English; the Julian Mason Award for excellence in the study of Southern literature; and the Robert M. Wallace Award for excellence in the study of English. Each spring, it also awards the Goudes Scholarship and the Joan Neal Scholarship to rising senior English majors, for academic excellence and financial need.

ENGLISH MINOR

A minor in English consists of 18 hours in english at the 2000 level or above. Students must take ENGL 2100 and 3100 and at least six additional hours in courses at the 3000 level or above to complete the minor. A GPA of 2.0 or better in the minor is required for graduation.

AFRICAN AMERICAN LITERATURE MINOR

A minor in African American Literature consists of 18 hours as follows:

Required courses - nine hours

Note: these courses must be taken before the elective courses.

ENGL 2100 Writing About Literature
ENGL 2301/AAAS 2301 Introduction to African American Literature
AAAS 1111 The African American Experience Through Reconstruction

Elective courses - nine hours

ENGL 4147 Early Black American Literature
ENGL 4148 Twentieth-Century Black American Literature: Prose
ENGL 4155 Pan-African Literature
ENGL 4156/AAAS 4106 Gender and African American Literature
ENGL 4157/AAAS 4107 African American Poetry
ENGL 4158/AAAS 4108 African American Literary Theory and Criticism
AAAS 2106 Literary Analysis of Black Protest of the 60's
ENGL 3050, 4050, 4090 Special topics courses, only when concerning African American literary figures or topics

English 1101 and 1102 or 1103 are prerequisites for all courses in the minor except AAAS 1111 and 2106.

TECHNICAL/PROFESSIONAL WRITING MINOR

A minor in Technical/Professional Writing consists of 21 hours including ENGL 4180 and ENGL 4410 or ARTG 3408; six hours above the 1000 level in a technical or scientific discipline in addition to General Education requirements; and nine hours selected from ENGL 4008, 4181, 4182, 4183 or ARTG 3283. (Enrollment in ARTG 3408 and 3283 is restricted to art majors and must be approved by the coordinators of the minor and the graphic design area.) ENGL 1101, 1102 (1103) and 2116 are prerequisites for all other courses in the minor. Students should declare the minor prior to enrollment in ENGL 2116.

Note: The English Department allows English majors who minor in African American Literature or Technical Writing to count only two courses from the minor toward fulfillment of the major degree requirements.

TEACHER LICENSURE IN ENGLISH

Students seeking licensure to teach English in grades 9-12 should consult with their advisors in the Department of Middle, Secondary, and K-12 Education regarding education courses that are required for licensure. Such students must fulfill all the requirements of the English major **and** the following additional requirements and expectations: at least 39 hours in english above the 1000 level with a GPA of at least 2.75 for those courses taken at UNC Charlotte; a GPA of at least 2.75 for all courses taken at UNC Charlotte; and submission of an acceptable writing portfolio to, and successful interview with, the English Department's Teacher Education Committee. Required courses are: ENGL 2100 and 3100, (additional coursework in writing may be required); ENGL 3132 and one additional course focusing on language or literacy above the 2000 level; (e.g. ENGL 4161, or ENGL 4166); ENGL 3104; one 3000 level survey course in British literature, one in American literature, and one in either British or American literature; ENGL 4254; ENGL 2111 or 2112; ENGL 4116 or 4117 (or an approved 4000 level course in Shakespeare); one course in minority literature(s) (ENGL 2301, 3156, 4104, 4146, 4147, 4148, 4156, 4157, 4158, or an approved special topic course in multicultural literature(s) such as ENGL 3050 and one elective at the 4000 level. Also required, and not counted toward the 39 hours of english coursework, are COMM 1101 and competency in a foreign language through the intermediate level. Students who complete the requirements for teaching licensure are ***not*** required to complete an approved minor. Students should consult early with their departmental advisors in English and Education regarding these requirements and expectations. Licensure applications are the responsibility of the student and the Office of Student Academic Services in the College of Education.

Film Studies

INTERDISCIPLINARY STUDIES

Director: Robert C. Reimer, Professor of German

The interdisciplinary minor in Film Studies is designed to allow students to develop knowledge of film and video as an art form while fulfilling the requirements for one of the approved degree programs at the University. The College of Arts and Sciences courses that satisfy the minor represent different aspects of film and video art: (1) Culture, (2) History, (3) Theory, and (4) Production.

FILM STUDIES MINOR

The minor in Film Studies requires the completion of 18 hours of approved courses as follows: (1) either ENGL 2106 Introduction to Film Analysis or FORL 3160 European Cinema; and (2) at least five additional courses representing at least three of the departments offering the minor: Courses that satisfy the minor are as follows:

AAAS	2105	Black Images in the Media
ARTM	3105	Video Art
ARTT	3891	Time Arts Workshop
COMM	3050	Topics in Communication Studies: Film
ENGL	3050	Topics in English: Film
FREN	3160	Topics in French Film
GERM	3160	Survey of German Film
HIST	3310	History and Culture through Film
RELS	3212	Film and Identity
SPAN	3160	Studies in Hispanic Film
THEA	2218	Playwriting
THEA	3001	Topics in Theatre: Film

In addition, courses offered by departments not presently associated with the minor in Film Studies may be applied to the minor upon approval of the Director

Students may elect as one of their courses an internship that focuses on a video or film project in any of the participating departments. Students who choose this option will sign up under the internship course number of the department that seems most appropriate. If no department designation is available, students will sign up for ARSC 3400, the internship number in the College of Arts and Sciences.

Department of Geography and Earth Sciences

Chairperson: Professor Furuseth; *Knight Distinguished Professor*: Sommer; *Professors*: Bender, Hartgen, Ingalls, Lord, Xiang; *Associate Professors*: Allan, Bobyarchick, Diemer, Forsythe, Ives, Marshall, Martin, Moore, Walcott; *Assistant Professors*: Campbell, Graves, Smith; *Lecturers*: Garo, Griffing, Smith; *Emeritus:* Nunnally, Schul, Stuart

The Department of Geography and Earth Sciences offers an interdisciplinary program of study that has three different but related components. Earth Sciences includes the study of the hydrosphere, atmosphere, and surficial materials of the earth. Geology examines the composition, history and structure of the whole earth. Geography emphasizes the locational aspects of human activities as they are distributed over the earth.

Earth Sciences. The Earth Sciences program focuses on the dynamic processes acting at the surface of the earth. Students pursuing the B.S. degree choose among three options within the curriculum. The *atmosphere-hydrology* option focuses on the interaction of the hydrosphere and atmosphere with surficial materials. It includes courses in climatology, fluvial processes, hydrology, and meteorology. The *environmental geology* option investigates the origin and distribution of surficial materials and examines technical aspects of human interaction with the earth. The environmental geology option combines essential elements of a geology program with applied courses such as fluvial processes, geologic mapping, hydrogeology, remote sensing, and soil science in order to prepare students for employment opportunities in the fields of environmental monitoring and consulting. The *environmental information systems* option focuses on the decision-making processes of humans as they interact with the environment through such courses as environmental dilemma, environmental geology, environmental planning, geographic information systems (GIS), and remote sensing.

Geography. The Geography curriculum is oriented toward the methodologies of social science in which the importance of location is stressed. Traditional regional studies and conceptual courses that deal with land use patterns, transportation systems, industrial location, the distribution of retail activities, city planning, and urban systems are augmented by technique-oriented courses such as map design and compilation, computer mapping, analysis of satellite images, statistical methods, and geographic information systems (GIS). These courses prepare students in both the concepts and methods of contemporary spatial analysis.

Students majoring in Geography find careers open to them in urban and regional planning, cartography, GIS, marketing research, transportation planning, real estate development and teaching. While a wide range of career options are available to undergraduate geography majors, graduate studies provide additional options. *(See The Graduate Catalog regarding the M.A. degree program).*

Geology. The Geology program examines the earth as a dynamic natural system by focusing on its composition, history and structure. Students pursuing a B.S. degree take coursework in areas such as mineralogy, geochemistry, structural geology, tectonics, sedimentology, stratigraphy, petrology, and optical mineralogy. The program prepares students interested in graduate studies and careers as professional geologists.

Students majoring in Earth Sciences and Geology pursue careers in environmental consulting, environmental planning, meteorology, mining, oil and gas exploration, site analysis, terrain analysis, and teaching. There are employment opportunities in both government and private industry with the greatest range of positions available to students who earn graduate degrees.

A unique advantage of the Department's interdisciplinary curriculum is that students majoring in one component of the program may take related courses in another component. A student concentrating in geology, for example, might study computer mapping as part of their major. Conversely, a geography student interested in land use planning could take supporting course work in soil science or hydrology as part of the major.

Facilities. The Department of Geography and Earth Sciences is housed in modern, well-equipped facilities. Extensive rock, mineral and fossil holdings are available for instructional purposes. The optical mineralogy laboratory

features high-quality petrographic microscopes linked with image analysis and cathodoluminescence systems. Analytical facilities also include a geochemical sample preparation laboratory, a plasma emission spectrometer and rapid sediment analyzers. The petrology lab employs a precision thin section machine and an automated photomicrography unit that is attached to a research-grade polarizing microscope. A proton magnetometer and ground penetrating radar systems are available for ground-based field surveys. Frequent field trips are facilitated by the Department's vans, extensive field instruments and camping gear.

The atmospheric-hydrology laboratory houses the Department's Meteorology Data Acquisition System (McIDAS), a geographic information systems package that provides "real time" meteorological data via links to weather satellites. Stream gauges and soil analysis instruments are on hand for use in fluvial processes and soils labs.

Students have access to a Departmental computer lab equipped with networked Apple Macintosh and IBM microcomputers, a file server, and printer. This facility is networked to other labs on campus and to the University's mainframe computers. A separate geographic information system (GIS) and remote sensing lab houses a Sun Microsystems 4/390 fileserver, Sun Sparc workstations, digitizers, and a large format color electrostatic plotter. Arc/Info and Erdas software packages run on the workstations and are used to support classes in GIS, remote sensing and image processing, and spatial decision support systems. The Department also maintains a large collection of geographically-referenced data for use by students and staff in the lab. These data sets include satellite imagery, U.S. Census Bureau files, and U.S. Geological Survey map data, as well as locally-developed data sets.

The UNC Charlotte Cartography Laboratory has earned a reputation for its high quality production cartography. This cutting edge facility contains high end Macintosh workstations, one 1200 dpi scanner, a 35 mm slide scanner and a slide processing unit, high resolution laser printers and a large format color printer. Software include Adobe Illustrator, Photoshop, PageMill, Authorware, Director, Power Point and Astound.

Cooperative Education in Geography and Earth Sciences. Students in the Geography and Earth Sciences programs may obtain practical work experience while pursuing their degrees by participating in the Cooperative Education program. The work experience is approved by the Department and is closely related to the student's field of study. Students interested in learning more about participating in this program should contact the Department of Geography and Earth Sciences.

GEOGRAPHY MAJOR: BACHELOR OF ARTS

A major leading to a B.A. degree consists of 29 hours in geography and earth sciences and will include GEOG 1101, 1105, 2100, 2101, 2110 and ESCI 1101. Except for required courses, all work offered for the major must be numbered 2100 or above. Students are encouraged to take additional coursework in related disciplines or to select a second major. Consult the Department of Geography and Earth Sciences for a suggested schedule to complete the B.A. degree with a major in Geography.

GEOGRAPHY MAJOR: BACHELOR OF SCIENCE

A major leading to a B.S. degree consists of 40 hours of geography and earth sciences and will include 17 hours of major requirements listed below. In addition, students must complete ENGL 2116 (Introduction to Technical Communication) as well as General Education English requirements, and one mathematics course above MATH 1103. Options are available within the major in Economic Geography and in Community and Regional Planning and other concentrations can be developed. Students should contact their advisors about these and other possible concentrations. Except for required courses, all work offered for the major must be in courses numbered 2100 or above. Consult the Department of Geography and Earth Sciences for a suggested schedule to complete the B.S. degree with a major in Geography.

Major Requirements: 17 hours

GEOG	1101	World Regional Geography	3
ESCI	1101	Earth Science-Geography	4
GEOG	1105	Location of Human Activity	3
GEOG	2100	Maps and Graphs	3
GEOG	2101	Maps and Graphs Laboratory	1
GEOG	2110	Introduction to Geographic Research	3

Community and Regional Planning Option Requirements: select 16 hours

GEOG 3200	Land Use Planning	3
GEOG 3205	Internal Structure of the City	3
GEOG 3210	Regional Planning	3
GEOG 3215	Environmental Planning	3
GEOG 4120	Introduction to GIS	4
GEOG 4210	Urban Planning Methods	3

Economic Geography Option Requirements: select 15 hours

GEOG 3150	Manufacturing Geography	3
GEOG 3205	Internal Structure of the City	3
GEOG 4155	Retail Location	3
GEOG 4160	Geography of Transportation Systems	3
GEOG 4255	Applied Population Analysis	3
GEOG 3000	Topics in Regional Geography	3
GEOG 4000	Selected Topics in Geography	3

Option-related electives to complete B.S. degree may be selected from:

GEOG 3100	The City and Its Region	3
GEOG 3115	Urban Transportation Problems	3
GEOG 3265	Behavioral Geography	3
GEOG 4103	Computer Mapping	3
GEOG 4155	Retail Geography	3
GEOG 4255	Applied Population Analysis	3
GEOG 4400	Internship in Geography	3-6
GEOG 4130	Advanced GIS	4

GEOGRAPHY MINOR

A minor in Geography consists of 19 hours, including

GEOG 1101 and 1105 and ESCI 1101/1101L, and nine additional hours in geography. The minor can be tailored to support a number of majors, such as business, computer science, political science, and architecture.

EARTH SCIENCES MAJOR: BACHELOR OF ARTS

A major in Earth Sciences leading to the B.A. degree consists of a minimum of 30 semester hours, including ESCI 1101, 1101L and GEOL 1200, 1200L, and 1210, 1210L. The remaining 18 hours are selected from earth sciences, geology, and geography and must include at least nine hours in earth sciences and geology courses numbered 3000 or above. Students are encouraged to take additional coursework in related sciences and mathematics or to select a second major. Consult the Department of Geography and Earth Sciences for a suggested schedule to complete the B.A. degree with a major in Earth Sciences.

EARTH SCIENCES MAJOR: BACHELOR OF ARTS, SECONDARY TEACHING OPTION

Students preparing to teach high school earth science may become licensed by earning the B.A. degree including the Secondary Teaching Option. This program consists of a minimum of 37 hours in geography and earth science including ESCI 1101, 1101L; GEOL 1200, 1200L, 1210, 1210L, ESCI 2101; GEOL 3115, 3190, 3190L and GEOG 2100; 11 hours selected from earth science courses of which at least four hours are in courses numbered 3000 or above. Also required for this option are CHEM 1251 & 1251L, PHYS 1101 & 1101L, MATH 1241, SPED 2100, 3290, EDUC 2100, 2140, 3141, 3150, 3151, 3142, 3251, 3441, READ 3255, and HLED 3152; PHYS 1130 & 1130L, ESCI 2105 or BIOL 4149, and one additional physical or life science elective. Licensure applications are the responsibility of the student and the Office of Student Academic Services in the College of Education.

EARTH SCIENCES MAJOR: BACHELOR OF SCIENCE

A major in Earth Sciences leading to a B.S. degree consists of a minimum of 45 hours in earth sciences including completion of the requirements for one of the three options below in addition to the following core courses: ESCI 1101, 1101L and GEOL 1200, 1200L, and 1210, 1210L; CHEM 1251 and 1251L; PHYS 1101 and 1101L (or 2201 and 2201L); and either CHEM 1252 and 1252L or PHYS 1102 and 1102L (or 2202 and 2202L); and MATH 1241 and 1242 or higher (except that students in the environmental information systems option may substitute STAT 1220 for the second math course). Students pursuing the B.S. degree in Earth Sciences must work closely with an advisor in Earth Sciences to follow a program to complete degree requirements in one of the three options offered by the Department. Students with advanced permission of the Department may substitute electives among the three options.

Environmental Geology Option. Required courses are GEOL 3115, 3120, 3124, 3130, 3190, 3190L; 4145 and ESCI 4140. A minimum of seven hours of electives must be selected from GEOL 3120L, 4100, 4105, 4105L; 4110, 4130, 4145L, 4115, 4120, 4165, 4400; ESCI 3210, 3250, 4155, 4170, 4233, 4400; and GEOG 4120.

Atmospheric Science--Hydrology Option. Required courses are ESCI 3240, 3250, 4140, 4150, and 4155. A minimum of 14 hours of electives must be selected from ESCI 2105, 3210, 3251, 4170, 4800, 4180, 4222; GEOL 3120, 3120L, 4105, 4105L; 4145, 4145L, 4165; and GEOG 4120. STAT 1220 is strongly advised for students in this option.

Environmental Information Systems Option. Required courses are ESCI 2101 and 4170, GEOL 3190 and 3190L, GEOG 3215 and 4120. A minimum of 15 hours must be selected from ESCI 2105, 3170, 3210, 3240, 3250, 4140, 4150, 4155, 4180, 4222; GEOL 3115, 3120, 3120L, 4105, 4105L, 4145, 4145L, 4165; and GEOG 3200, 4130.

Consult the Department of Geography and Earth Sciences for a suggested schedule to complete the B.S. degree with a major in Earth Sciences or see the Department website http://www.uncc.edu/colleges/arts_and_sciences/geoearth for further information.

EARTH SCIENCES MINOR

A minor in Earth Sciences consists of 20 hours of earth sciences courses. Students will choose either a geology option (GEOL 1200, 1200L and 1210, 1210L are required) or an environmental earth sciences option (ESCI 1101, 1101L, 3250 and 4140 are required); and take 12 additional hours in geology and earth sciences. The minor can be tailored to support a number of majors, such as engineering, biology, chemistry, or physics.

GEOLOGY MAJOR: BACHELOR OF SCIENCE

A major in Geology leading to a B.S. degree consists of a minimum of forty five hours in geology and earth sciences and 18 hours of extradepartmental courses in chemistry, physics and mathematics.

Required Courses			Semester Hours
ESCI	1101	Earth Science – Geography	3
ESCI	1101L	Earth Science - Geography Lab	1
GEOL	1200	PhysicalGeology	3
GEOL	1200L	Physical Geology Laboratory	1
GEOL	1210	Earth History	3
GEOL	1210L	Earth History Laboratory	1
GEOL	3115	Mineralogy	4
GEOL	3124	Sedimentology	4
GEOL	3130	Structural Geology	4
GEOL	4130	Optical Mineralogy	4

Elective Courses. Select 17 hours from the following:

GEOL	3120	Geochemistry	3
GEOL	3120L	Geochemistry Lab	1
GEOL	3140	Paleontology	3
GEOL	3190	Environmental Geology	3
GEOL	3190L	Environmental Geology Lab	1
ESCI	3210	Soil Science	3
GEOL	4100	Igneous & Metamorphic Petrology	4
GEOL	4105	Geomorphology	3
GEOL	4105L	Geomorphology Laboratory	1

GEOL	4110	Stratigraphy	4
GEOL	4115	Applied Geophysics	4
GEOL	4120	Geologic Mapping & Interpretation	4
GEOL	4135	Tectronics	4
ESCI	4140	Hydrologic Processes	4
GEOL	4145	Fundamentals of Hydrogeology	3
GEOL	4145L	Hydrogeology Laboratory	1
ESCI	4170	Fundamentals of Remote Sensing	4
GEOL	4165	Aqueous Geochemistry	4
GEOL	4800	Individual Study in Geology	1

Required Extra Departmental Courses

CHEM	1251	Principles of Chemistry	3
CHEM	1251L	Principles of Chemistry Laboratory	1
PHYS	1101	Introductory Physics I	3
PHYS	1101L	Introductory Physics I Laboratory	1
MATH	1241	Differential and Integral Calculus I	3
MATH	1242	Differential and Integral Calculus II	3
and:			
CHEM	1252	Principles of Chemistry	3
CHEM	1252L	Principles of Chemistry Laboratory	1
or:			
PHYS	1102	Introductory Physics II	3
PHYS	1102L	Introductory Physics II Laboratory	1

The following courses are recommended for students planning to attend graduate school:

GEOL	4125	Field Camp	6
GEOL	4800	Individual Study in Geology	3
BIOL	2222	Plant Biology	4
BIOL	2233	Animal Biology	4

Honors in Geography and Earth Sciences Program. To graduate with Honors in Geography or in Earth Sciences a student must meet the following requirements:

1. Satisfy all the requirements for the degree sought and the major in Geography or in Earth Sciences.
2. Complete at least two courses designated as Honors in the UNCC course schedule. These may be offered through the University Honors Program or from any of the individual departments that have Honors designated courses. Honors work may be undertaken as early as the first semester of the freshman year.
3. Maintain at least a 3.2 GPA in all Honors work, 3.25 GPA overall, and 3.2 GPA in all geography and earth sciences courses taken at UNCC to satisfy major requirements.

As part of the final 15 hours of course work, the student must register for the Honors section of GEOG 4800/ESCI 4800- Individual Study in Geography/Earth Sciences (3) and complete a research project to be submitted to a faculty department Honors committee that will certify that the project merits Honors distinction. The candidate must earn the grade *A* on the thesis research. To be certified as Honors quality, a project must contain original research and demonstrate a high degree of scholarship. Students seeking the Honors designation must notify the Honors Committee no later than the second week of classes that the project be evaluated for Honors. Faculty members who serve on the Honors Committee will not evaluate projects completed under their supervision. Instead, another faculty member will be asked to evaluate the project in question along with the other members of the Committee. Should the Committee agree to confer Honors on the student's project, it will certify this to the Department Chair. Should the Committee decide that the project does not warrant Honors, the student will still receive whatever grade the faculty member supervising the project assigns.

Gerontology

INTERDISCIPLINARY STUDIES

Director and Graduate Coordinator: Professor Shenk *Undergraduate Coordinator:* Assistant Professor Peacock; *Assistant Professor* Bradley

The Interdisciplinary Program in Gerontology is designed to provide students with academic and field experiences in the area of aging. An understanding of the basic processes of aging and of its social consequences is valuable not only for students who wish to pursue careers directly related to gerontology but also for students interested in traditional careers in other areas. As the number of older persons in our society continues to increase, it will be important for people in every occupation and profession to have a basic understanding of the aging process. The goal of the program is to provide students with that basic understanding.

Gerontology is both an interdisciplinary and a multidisciplinary field. Invariably, the best research, training, and service programs in gerontology have developed when professionals from a variety of traditional academic disciplines have been afforded the opportunity to work together, each contributing a unique expertise while benefiting from the expertise of others. The minor in Gerontology is built around a core sequence of interdisciplinary and multidisciplinary courses that are taught by professionals from a variety of different academic disciplines. This approach is designed to bring together information from multidisciplinary sources, integrate theoretical and applied concepts in gerontology, and communicate to students the need for an integrated approach to meeting the needs of older persons.

GERONTOLOGY MINOR

The minor in Gerontology is awarded only to students completing an undergraduate major at UNC Charlotte. A total of 18 hours in gerontology courses with an overall GPA of 2.5 in those courses is required. Two interdisciplinary courses (GRNT 2100 and 3600) form the core of the gerontology sequence and are required for all students completing the minor. Students must select *at least two* of the following ***primary electives:*** Psychology of Aging (GRNT 2124), Health and the Aging Process (GRNT 3115), Sociology of Aging (SOCY 4110), Aging Programs and Services (GRNT 4250). Students select remaining courses from the approved lists of **secondary elective** courses related to gerontology. *Students should confer with the undergraduate Gerontology coordinator as they plan*

their schedules and are encouraged to select elective courses from outside their major.

Students who have earned a bachelor's degree from UNC Charlotte may be readmitted to pursue a minor in Gerontology, just as they may be readmitted to pursue a second major. (For further information on readmission, see the admissions section of this *Catalog*.)

Students who have earned a bachelor's degree from an institution other than UNC Charlotte may not receive a minor in Gerontology from UNC Charlotte (unless they earn a second baccalaureate degree from UNC Charlotte). Such students may request a letter from the program and/or a transcript notation that acknowledges completion of courses specified for the minor but indicates that the minor can only be awarded upon completion of the degree.

I. The two ***required courses*** are the following:
GRNT 2100 Introduction to Gerontology (C) (3)
GRNT 3600 Senior Seminar and Field Experience in Aging (W) (3)

II. Select at least two of the following ***primary electives:***
GRNT 4250 Aging Programs and Services (3)
GRNT 3115 Health and the Aging Process (3)
GRNT 2124 Psychology of Aging (3)
GRNT 4110 Sociology of Aging (3)

III. ***Secondary elective courses*** should be chosen from the following list of approved courses related to gerontology in consultation with the Gerontology minor advisor:

ANTH 3132 Aging and Culture (X,W) (3)
GRNT 3800 Independent Study in Gerontology (1-8) [total of 3 credits can be counted toward minor]
GRNT 4050 Topics in Gerontology (1-4)
GRNT 4260 Women: Middle Age and Beyond (3)
GRNT 4270 Intergenerational Relationships and Programs (3)
PHIL 3228 Biomedical Ethics (3)
PSYC 3125 Older Worker and Retirement (W) (3)
SOCY 2090 Death and Dying
SOCY 4130 Sociology of Health and Illness (3)
SOCY 4134 Families and Aging (3)
SOCY 4150 Older Individual and Society (V,C) (3)
SOWK 4101 Social Work Practice with the Elderly (3)

The Gerontology Program offers both a Master's degree and a graduate certificate program in Gerontology.

Department of History

Chairperson: Professor Smail; *Professors*: Azevedo, Johnson, Kierner, Morrill, Smail; *Charles H. Stone Professor:* Gabaccia; *Robert Lee Bailey Professor:* Goldfield; *Professor Emeritus:* Rieke, Perzel; *Associate Professors*: Dupre, Laurent; *Assistant Professors:* Bucheneau, Donohue, Feinberg, Flint, Flower, Hogue, Mixon, Sabol, Thompson, Thorsheim; *Lecturers*: Hancock, Lansen

History is the broadest and most integrative of all disciplines concerned with human beings and society. Today's historians use the research tools of the social sciences to understand and explain major events and changes in human experience over time. Yet history has always been considered one of the humanities, and it remains so because historians are concerned with issues of value and meaning, with the significance that historical events had for the lives of individuals and groups. Students of history gain an understanding of people, groups, and society and a sensitivity both to detailed research and the "big picture." Through the study of history, students can become better prepared for life in a rapidly changing world and a rapidly evolving economy.

Professions like law and medicine have always considered history an ideal undergraduate major because it emphasizes the essential intellectual skills: critical thinking, research, writing, and speaking. For these reasons history also remains a sound preparation for almost any undergraduate and a good choice for the typical student in America, who graduates with a basic education rather than a specific job training. Most history majors, like other majors in the Arts and Sciences, go into a wide variety of jobs in the business world--from sales or communications to research and administration. The most popular history-related field that majors enter is teaching, and the Department of History offers a secondary teacher licensure program in cooperation with the Department of Middle, Secondary, and K-12 Education with the College of Education. Other opportunities for training in history-related fields are available as well. Members of the faculty have expertise and offer courses in historic preservation, local history, and other aspects of public history. Through the master's program history majors can pursue their interests at the graduate level. (See *The Graduate Catalog*).

Study Abroad. Arrangements can be made for study abroad in Asia, Africa, Europe, Latin America or Canada.

BACHELOR OF ARTS

A major in History leading to the B.A. degree consists of 30 hours of history, including HIST 1121, 2100, and 4000/4001/4001, and at least six hours in any of the following areas: Asian History, African History, Middle Eastern History or Latin American History. No more than six semester hours from the following list may be counted towards the requirements of the major: HIST 1000, HIST 1100, HIST 1115, HIST 1120, HIST 1160, and HIST 1161. The student must achieve a minimum GPA of 2.0 in all history courses.

Related Work. History majors must demonstrate foreign language competency in one of the following ways:

1) One course at the 2000 level in a language other than English that uses the Latin alphabet (e.g.), French, German, Italian, Portugese, Spanish, Latin).

2) The 1202 course (or its equivalent) in a modern language that does not use the Latin alphabet (e.g., Arabic, Chinese, Greek, Japanese, Russian).
3) Non-native English speakers may complete the foreign language requirement by passing ENGL 1101 and ENGL 1102 or the equivalent.

TEACHER LICENSURE

The department, in collaboration with the College of Education and the Department of Middle, Secondary, and K-12 Education, offers a program of history and professional education courses to prepare students for a North Carolina (9-12) teaching license. Students interested in teaching history and social studies in the public schools should declare this interest during the first semester of the sophomore year to obtain appropriate advising and prepare for formal admission to a teacher education program. Students should contact the advisor for teacher education within the Department, as well as the Office of Student Academic Services in the College of Education, for information about the requirements for admission to teacher education, coursework, and the culminating student teaching experience. Additional information about teacher education may be found in the College of Education section of this catalog.

Students seeking teacher licensure in History must complete the requirements for the History major, including at least three semester hours in american history. Licensure in Comprehensive Social Studies requires an additional 21 hours of related work distributed among three of the social sciences and sociology. Finally, students must complete specified professional education courses in the College of Education.

In addition to requirements set by the College of Education, students must complete HIST 2100 with a grade of *C* or better for admission to the Teacher Education Program and must have earned a GPA of 2.75 or better in all history classes for admission to student teaching.

HISTORY MINOR

A minor in History consists of 18 semester hours including HIST 1121; no more than six additional hours at the 1000 level; and at least nine semester hours selected from courses above the 1000 level. The student must achieve a minimum grade point average of 2.0 in all history courses.

HONORS PROGRAM IN HISTORY

The Department of History offers an Honors program as well as individual Honors courses. Both History majors and non-majors are welcome to participate.

Admission. Students or faculty may initiate applications for admission to the History Honors Program. Admission into the program is not final until both the Department Honors Committee and the University Honors Council approve the student for candidacy.

Courses. An Honors course (HIST 3700) is offered in addition to the Honors thesis.

Certification Requirements. To complete the History Honors Program a student must complete HIST 3700 and write an Honors thesis of *A* quality as judged by a committee of readers. Students must complete the History major with a GPA of at least 3.25 in history and an overall GPA of at least 3.0.

International Studies

INTERDISCIPLINARY STUDIES

Director: Professor Chernotsky

International Studies is an interdisciplinary program within the College of Arts and Sciences. It draws upon the faculty and courses of a number of departments and is structured to give students skills and knowledge to understand and analyze societies outside the United States in the context of the rapidly changing and increasingly interdependent world. By integrating courses on area studies and world affairs from a variety of departments, the program allows students interested in studying other cultures and societies to focus attention across traditional disciplinary boundaries. International Studies is of particular value to those with career objectives in government, law, journalism, teaching, business, trade, or military service. It also serves those who will seek employment with international organizations such as the United Nations or with non-governmental agencies with an international or cross-cultural focus.

BACHELOR OF ARTS

A major in International Studies requires a minimum of 30 semester hours in courses approved for International Studies credit to include: (1) INTL 1101 (Introduction to International Studies); (2) one course from each of the three Advanced Core areas designed to enhance global economic, geo/political, and social/cultural awareness; (3) one required course and four elective courses from within one of the area concentrations offered - **African, Asian, European or Latin American Studies;** (4) INTL 4601 (International Studies Seminar). Majors must also complete related work in foreign language and an international experience as stipulated in the core curriculum. Each student, in consultation with an advisor, will prepare a Plan of Study for completion of these requirements upon declaration of the major.

Curriculum:

1. **INTL 1101.** Introduction to International Studies (3)

2. **Advanced Core (9).** Select one course from each of the following categories. Other courses may be considered if approved by the Director.

   a. Economic Awareness:
      ECON 1101 Economics for Non-Majors
      (designated international section

only)
ECON 1201 Principles of Macroeconomics (designated international section only)
ECON 3171 International Economics for Non-Majors (Prerequisites ECON 1201, 1202)
GEOG 3105 Geography of the Global Economy
HONR 1702 Economic Welfare and International Communities
POLS 3151 International Political Economy

b. Geo/Political Awareness:
GEOG 2165 Patterns of World Urbanization
HONR 1701 War, Peace, Justice and Human Survival
POLS 3131 Political Development
POLS 3152 International Organization
POLS 3162 International Law

c. Social/Cultural Awareness:
ANTH 2122 Beliefs, Symbols and Rituals
ANTH 3111 Culture Change and Applied Anthropology
ANTH 4120 Intercultural Communication
CJUS 4103 International Criminal Justice
HONR 3702 Social Justice and Human Rights
RELS 1110 The Long Search

3. **Foreign Language.** Students are expected to demonstrate competency in a foreign language appropriate to the area studies concentration selected equivalent to the completion of two courses at the 3000 level or above.

4. **Area Studies Concentration (15).** Each student will select an area of concentration and will complete the required course designated.

Africa: INTL 2101 Introduction to African Studies (3)
Asia: INTL 2201 Introduction to Asian Studies (3)
Europe: INTL 2301 Introduction to European Studies(3)
Latin America: INTL 2401 Introduction to Latin American Studies (3)

An additional 12 hours of elective credit from courses approved within the selected area studies concentration must be completed (see list of recommended courses). While there is no formal requirement as to the distribution of courses across departments, the Plan of Study for area studies must address issues that will further economic, geo/political, and social/cultural awareness.

5. **International Experience.** Students are required to complete an international experience related to the area studies concentration they have selected. This may be fulfilled through participation in a formal education abroad program or through foreign-based work, service, or internship activities. This experience must be specified and approved by the Director. Academic credits earned may be applied to the requirements of the major. A U.S.-based experience of an international nature or prior international experience may be considered.

6. **INTL 4601.** International Studies Seminar (3)

INTERNATIONAL STUDIES MINOR

A minor in International Studies requires completion of 26 semester hours (including foreign language) with a GPA of 2.5 or better. Students will select a concentration in **African Studies, Asian Studies, European Studies, Latin American Studies or International Business.** A **self-designed** concentration focusing on a particular issue, theme, or region is also available. All students pursuing the minor must have their curriculum approved by the Director of International Studies.

Curriculum:

1. **Core courses:** Six hours of introductory course work selected from:
INTL 1101 Introduction to International Studies (3)
and one of the following:
ANTH 1101 General Anthropology (3)
GEOG 1101 World Regional Geography (3)
HIST 1100 The World in the 20th Century (3)
POLS 1150 Introduction to International Politics (3)

2. **Foreign Language:** Six to eight hours of foreign language at the 2201 and 2202 level in a language appropriate to the selected concentration. If 2201 and 2202 courses are not available, 1201 and 1202 in a second appropriate language may be presented.

3. **Area Concentration.** Twelve hours of related course work appropriate to the selected concentration in **African, Asian, European or Latin American Studies** (see list of recommended courses). All courses must be chosen from outside the student's major and from at least two departments.

For the **International Business** concentration, three of the four courses (nine hours) must be selected from the following:

FINN 3223 International Financial Management (3)
MGMT3274 International Business Processes & Problems (3)
MKTG 3215 International Mktg Management (3)
ACCT 3150 International Accounting (3)
MKTG 3218 Export Marketing and Logistics (3)
ECON 3171 International Economics for Non-Majors (3)

The fourth course (three hours) may be selected from the list above or from among the following non-business courses:

AAAS 3265 African Economic Development (3)
ANTH 4120 Intercultural Communications (3)
POLS 3151 International Political Economy (3)

Note: Enrollment in courses offered from The Belk College of Business Administration is subject to all class standing and prerequisite requirements of The College.

These requirements may be waived or modified by permission of the coordinator of the International Business Program or by the Chairperson of the Department offering the course.

Self Designed Concentration: Students choosing to focus their study around a particular issue, theme, or region not covered by the other area concentrations may do so with the prior advice and consent of the Director of International Studies and subject to the regular availability of sufficient courses and an appropriate foreign language.

4. **Education Abroad.** Although not required for the minor, education abroad is encouraged and recommended. The Office of International Programs offers a range of programs of varying duration. Academic credits earned may be applied to the requirements of the minor, subject to approval by the Director.

RECOMMENDED AREA STUDIES COURSES

Note: List subject to additions and deletions. Other courses may be considered, subject to approval of the Director.

African Studies

*INTL 2101 Introduction to African Studies (or HIST 2211; AAAS 2221)
AAAS 2205 African Culture (or ANTH 2111)
AAAS 2206 African Literature, Music and Art
AAAS 2207 Introduction to Pan Africanism
AAAS 3265 African Economic Development
AAAS 4101 Modern African Literature in English
AAAS 4105 Foreign Policy of African States (or POLS 3169)
ANTH 2111 Peoples of Africa (or AAAS 2205)
ENGL 4155 Pan African Literature
HIST 2210 Pre-Colonial Africa
POLS 3143 African Politics
POLS 3169 Foreign Policy of African States (or AAAS 4105)

Asian Studies

*INTL 2201 Introduction to Asian Studies (or HIST 2201)
ARTA 2112 Asian Art
HIST 2200 Asian Civilization
HIST 3161 History of Modern China
HIST 3162 Revolutionary Movements in Modern China
HIST 3168 Women and the Family in Modern East Asia
JAPN 3209 Japanese Civilization and Culture
POLS 3148 Chinese Politics
POLS 3149 Japanese Politics
POLS 3165 East Asia in World Affairs
POLS 3167 The United States and Japan
RELS 2102 Introduction to Asian Religions
RELS 3154 Hinduism
RELS 3157 Buddhism
RELS 3160 Tibetan Religions
RELS 3163 Religious Art & Architecture of India
RELS 3166 Taoism
RELS 3169 Zen Buddhism
RELS 3172 Religion in Asian Literature

European Studies

*INTL 2301 Introduction to European Studies (or HIST 3116)
ARTA 3120 20th Century Art in Europe
ECON 3133 Economic History of Europe
ENGL 3128 British Literature Since WWI
ENGL 4123 The Modern British Novel
FORL 3160 European Cinema
FREN 2209 French Civilization
FREN 3209 France Today
FREN 4003 Studies in French Literature
FREN 4007 Studies in French Culture and Civilization
FREN 4202 Survey of French Literature II
GERM 3030 Studies in German Culture
GERM 3050 Studies in German Literature
GERM 3160 Survey of German Film
GERM 4204 Survey of German Literature II
HIST 2252 Russian History From 1917 to the Present
HIST 2261 Britain Since 1688
HIST 3140 Modern Ireland
HIST 3147 The Third Reich
HIST 3148 The Holocaust
PHIL 3213 Modern Philosophy
POLS 3141 European Politics
POLS 3153 European Union
RELS 2101 Introduction to Western Religious Thought
RELS 4101 Religion and Modern Thought
SPAN 3209 Spanish Civilization and Culture
SPAN 4202 Twentieth Century Spanish Literature

Latin American Studies

*INTL 2401 Introduction to Latin American Studies (or HIST 2207)
ARTA 3112 Pre-Columbian Art
HIST 1140 Latin American Civilization
HIST 2206 Colonial Latin America
HIST 3174 Resistance and Adaptation
HIST 3175 Reform, Riots, Rebellions
HIST 3176 History of Mexico
HIST 3177 The Cuban Revolution
HIST 3178 History of Brazil
HIST 3260 U.S. and Latin America
POLS 3144 Latin American Politics
POLS 3164 U.S.-Latin American Relations
SPAN 3019 Hispanic Women Writers in English Translation
SPAN 3160 Studies in Hispanic Film
SPAN 3210 Spanish American Civilization and Culture
SPAN 3212 Introduction to Spanish American Literature
SPAN 4120 Advanced Business Spanish I
SPAN 4121 Advanced Business Spanish II
SPAN 4210 Studies in Spanish American Poetry
SPAN 4211 Studies in Spanish American Prose Fiction
SPAN 4212 Studies in Spanish American Theater

* Required Course for Major

Judaic Studies

INTERDISCIPLINARY STUDIES

Coordinator: Isaac Swift Distinguished Professor Cohen

The interdisciplinary minor in Judaic Studies is designed to allow students to develop a knowledge of the breadth of Jewish history, culture, literature, and religion. The College of Arts and Sciences courses that satisfy the minor represent different aspects of Judaism and Jewish civilization: Hebrew language; Bible; religion; history; contemporary literature; and the Holocaust.

JUDIAC STUDIES MINOR

The minor in Judaic Studies requires the completion of 18 hours of approved courses offered by at least two departments as follows: (1) RELS 3110 Juaism; (2) RELS 4108 Medieval Judaism; (3) one course in Hebrew or demonstration of Hebrew language proficiency; (4) at least one course in the modern period selected from the following: GERM 3050 German Holocaust, HIST 3148 The Holocaust, RELS 4109 Modern Judaism, or RELS 4110 Contemporary Jewish Thought; (5) at least two additional courses selected from: ENGL 4002 Women in Literature: Jewish Women Writers, ENGL 4146 Contemporary Jewish-American Literature, ENGL 6070 Literary Responses to the Holocaust, GERM 3050 German Holocaust, HIST 3148 The Holocaust, RELS 2104 Hebrew Scriptures, RELS 2107 Judaism and Christianity, RELS 3104 Prophecy and Prophetic Literature in Ancient Israel, RELS 3107 Psalms and Wisdom Literature, RELS 4107 Early Judaism, RELS 4109 Modern Judaism, RELS 4110 Contemporary Jewish Thought, or WMST 3111 Women in Judaism. Selected special topics courses, as well as other courses, may be subsequently added to the approval list of courses. Students should consult with the Coordinator.

Department of Languages & Culture Studies

Chairperson: Professor Miller; *Associate Chairperson:* Associate Professor Gleaves; *Professors*: Doyle, Reimer; *Professors Emeriti*: Bush, Gabriel, Saman, Suther; *Associate Professors*: Bissiere, Gonzalez, Grote, Hopper, Noiset, Park, Sandarg, Stephenson, Vance; *Associate Professors Emeritus*: Cernyak-Spatz, Merrill; *Assistant Professors*: Domoto, Godev, Linares, Russi; *Assistant Professor Emeritus:* McLeod; *Senior Lecturer*: Castro; *Lecturer:* Koralova.

The Department of Languages and Culture Studies has designed its programs to develop language skills and to provide insights into foreign cultures through the study of language, culture, and literature. The Department offers the Bachelor of Arts degree with majors in French, German, and Spanish. It also offers minors in Japanese, and in Western Antiquity and Classical Languages, as well as a Certificate in Translating and Business Languages. Courses in chinese, italian, and russian are offered regularly, and courses in arabic, hebrew, Portuguese and other languages are offered on an irregular basis, according to demand.

Students interested in foreign language study are encouraged to explore the following options: (1) a single major in French, German or Spanish, based on the standard liberal arts model, with or without teaching licensure; (2) a double major in a foreign language and another discipline or in two languages; (3) a foreign language minor; (4) a concentration in one or more languages to complement a major in another academic area; and (5) a concentration of courses leading to a Certificate in Translating or Business Language.

Scholarships, Study Abroad, Awards. Scholarships for summer study and employment abroad are available to UNC Charlotte students of French, German, Japanese, and Spanish. As a rule, applicants are required to major or minor in Language to be eligible, and they must have completed at least two years of study in the language they propose to use abroad. The Department strongly encourages all students to participate in a study abroad program and has exchange programs with universities in Chile, China, France, Germany, Japan, Mexico, Poland, Russia, and Spain. The Department regularly presents the following awards: the Mary Jim Whitlow Award for Service to the Department, the Pierre Macy Award for Excellence in French, the German American Award for Excellence in German, the Alemannia Award for Excellence in German, and the Karl Gabriel, Robert Reimer, and Susan Cernyak-Spatz Scholarships for Excellence in German and Service to the German Program. For detailed information contact the Department of Languages and Culture Studies.

BACHELOR OF ARTS

General Requirements for All Majors. All students are required to fulfill General Education requirements described in the *Academic Regulations and Degree Requirements* section of this *Catalog*, in addition to coursework specified below. *Note*: Introductory language courses may not be taken on a pass/no credit basis if they are being used to fulfill the University foreign language requirement. Students majoring or minoring in Language may not take required courses in the Department on a pass/no credit basis.

Placement. All incoming students must take a placement/proficiency exam in the target language if they have had any previous experience. No student with previous experience in a language may study a course numbered 1100 or 1201 in that same language. Foreign language majors and minors are advised to take a placement exam for correct level of placement in the sequence of courses leading to a major or minor.

Teacher Licensure. The Department, in collaboration with the Department of Middle, Secondary, and K-12 Education, offers a program to prepare students for K-12 teacher licensure in North Carolina. The student seeking licensure to teach a foreign language must fulfill the General Education requirements, the foreign language major, FORL 4200 and 4201, and all courses required for

licensure by the College of Education. Students planning to specialize in foreign language education should apply through the Coordinator for Foreign Language Education during the first semester of the sophomore year to obtain appropriate advising. Licensure applications are the responsibility of the student and the Office of Student Academic Services in the College of Education.

FRENCH. The French major offers two options:
Option A. Requires FREN 2201, 2202, 2207, 3201, 3202, 3203, 3209, and four additional courses at the 4000 level. Related work is to be approved by the Department. Students seeking teacher licensure take this option.

Option B. For students with a double major, requires FREN 2201, 2202, 2207, 3201, 3202, 3203, 3209, two additional courses at the 4000 level, and all courses required for the second major.

GERMAN. A major in German leading to a B.A. degree requires GERM 2201, 2202, 3201, 3202, 3030, 3050 (two courses under different topics), 4203 or 4204, 4010 or 4020, or an additional course on the 3000 or 4000 level. German majors must enroll concurrently for one hour of GERM 4050 for each GERM 3230 or 3050 course they take. In addition, 15 hours of related work (or a declared minor), approved by the German language staff, will be required. Candidates for teacher licensure must also take FORL 4200 and 4201 and satisfy requirements specified by the College of Education.

Students majoring in German and seeking a Certificate in Translating in German must also take TRAN 3271, 3272, 3273 and 3274, but may eliminate one GERM 3000 and one GERM 4000 course from the requirements for the major listed above.

SPANISH. A major in Spanish leading to the B.A. degree requires SPAN 2201, 2202, 3201, 3202 (or 3203), 3209 or 3210, 3211, 3212, plus 12 hours of spanish courses on the 4000 level. Students waived from SPAN 2201 and 2202 must take one additional 3000 or 4000 level course. Native Spanish speakers who take 3203 in lieu of 3201 and 3202 must take one additional 3000 or 4000 level course.

FOREIGN LANGUAGE MINORS

FRENCH. A minor in French requires FREN 2201, 2202, 2207, 3201, 3202, 3203, and 3209. Students who wish to take Commercial French (FREN 2205) and count it toward the minor may substitute it for FREN 2207 or 3203.

GERMAN. A minor in German requires 20 hours, as follows: GERM 2201, 2202, 3201, 3202, and six additional hours at the 3000 or 4000 level. A student who waived GERM 2201 and/or 2202 must take the equivalent number of hours in 3000 or 4000 level courses.

JAPANESE. A minor in Japanese requires six courses and at least 20 hours above the 1202 level, as follows: JAPN 2201, 2202, 3201, 3202, 3209, and 3800.

RUSSIAN. A minor in Russian consists of seven courses above the 1202 level, as follows: RUSS 2201 Intermediate Russian I, RUSS 2202 Intermediate Russian II, RUSS 3201 Advanced Russian Grammar, Composition and Conversation I, RUSS 3202 Advanced Russian Grammar, Composition and Conversation II, RUSS 3050 Masterpieces of Russian Literature (in translation), RUSS 3203 Russian Civilization and Culture, and RUSS 3800 Directed Individual Study.

SPANISH. A minor in Spanish requires 21 hours, as follows: SPAN 2201; 2202 or 2210; 3201, 3202, or 3203; 3209 or 3210; 3211 or 3212; and six additional hours at the 3000 or 4000 level. Students waived from SPAN 2201 must take one additional 3000 or 4000 level course.

MINOR IN WESTERN ANTIQUITY AND CLASSICAL LANGUAGES

The minor requires 15-24 semester hours depending upon student performance on the language proficiency exam. Successful completion of the minor requires GREK 2201 or LATN 2101, or three semesters of Greek and Latin; and four courses selected from at least three of the following:

(1) Ancient Material Culture: ARTS 3111 Ancient Art, ARCH 2111 Ancient Architecture;
(2) Ancient History: HIST 1115 The Ancient World, HIST 3102 History of Rome, HIST 3101 History of Greece, ANTH 3152 Early Civilizations;
(3) Greek and Roman Literature: ENGL 4210 Greek and Roman Drama, RELS 3101 Greek Myths and Religion,
(4) Greek and Roman Thought: POLS 3171 History of Classical Political Philosophy, PHIL 3211 Ancient Philosophy, PHIL 3212 Medieval Philosophy. Other courses may be approved by the classics coordinator.

CERTIFICATE IN BUSINESS LANGUAGES

The Certificate in Business Language program provides classroom, overseas (optional), and practical training in French, German, or Spanish for international business, which may be recognized examinations. Beginning with an alternative fourth semester course, the sequence continues with advanced-level course work that includes a two-semester component in advanced business French, German, or Spanish. Majors in any field are welcome.

CERTIFICATE IN TRANSLATING

Successful completion of TRAN 3271, 3272, 3273 and 3274 entitles the student to a Certificate in Translating. This certificate is not equivalent to a major in a foreign language, but it represents a skill developed at the bachelor's degree level. The Certificate in Translating may be taken in conjunction with a major in any field. All courses in this sequence involve translating into English from the source language.

Department of Mathematics

Chairperson: Professor Dow; *Associate Chairperson*: Professor Kazemi; *Coordinator of Graduate Program*: Professor Avrin; *Coordinator of Undergraduate Program*: Associate Professor Diao; *Coordinator of Mathematics Education:* Associate Professor Cifarelli; *Professors*: Wei Cai, Houston, Klibanov, Lambert, T. G. Lucas, T. R. Lucas, Molchanov, Oh, Papadopoulos, Quinn, Shafer, Sonin, Stavrakas, Sun, Tiwari, Vainberg, Weinstock, Wihstutz, Yushkevich, Zhu; *Associate Professors:* Anderson, Burnap, , Zongwu Cai, Chen, Cifarelli, Dai, Harris, Johnson, Reiter, Rothe, Royster, Sáenz-Ludlow, Wichnoski, Zhang; *Assistant Professors:* Biswas, Hetyei, Kawczak, Nabors; *Bonnie E. Cone Distinguished Professor in Teaching Emerita:* Leiva; *Professor Emeritus:* Goodrum, Nixon, Schoeps; *Emeritus:* Roth, Wright, Stewart.

Mathematics has important applications to numerous areas ranging from economics and other social sciences to physics and engineering. It is a challenging and interesting area to study in its own right with a broad and varied curriculum.

The Department offers majors leading to the B.S. and B.A. degrees as well as a minor in Mathematics. Students considering a major in Mathematics should take at least four years of high school mathematics, including at least one year beyond Algebra II. (Only well-prepared students will be permitted to enroll in MATH 1241 without first taking MATH 1103.) While excessive specialization at the undergraduate level is not encouraged, students may choose their upper-division mathematics electives to emphasize statistics, operations research or applied mathematics. Students graduating with a bachelor's degree in Mathematics should find themselves well prepared for a career in business or industry, especially if they have chosen to concentrate on some of the more applied areas in the program and have selected related work in an area of application such as economics, business or computer science. Students preparing for careers in industry or business should consider participating in the Department's Cooperative Education Program. Students completing the B.S. curriculum will be well prepared for graduate work in the mathematical sciences.

The Department offers graduate programs leading to master's and doctoral degrees. The Ph.D degree is available in Applied Mathematics. The M.A. degree is available in Mathematics Education and the M.S. degree in Mathematics has tracks in General Mathematics, Applied Mathematics, and Applied Statistics.

Teacher Licensure in Mathematics. Students preparing for licensure to teach mathematics in secondary school (grades 9-12) must major in Mathematics. They may select either the B.A. or the B.S. degree track, but their coursework must include MATH 3181, 4109, MAED 3103, 3105, and 3252, together with a number of education related courses. Before the end of the sophomore year, students should obtain an application for formal admission to the teacher education program in the Department of Middle, Secondary, and K-12 Education. Detailed information is available in the Mathematics Department office. Licensure applications are the responsibility of the student and the Office of Student Academic Services in the College of Education.

BACHELOR OF ARTS

A major in Mathematics for the B.A. degree consists of a minimum of 34 hours of approved mathematics, operations research or statistics courses, including MATH 1241, 1242, 2241, 2242, 2164, 2171, 3163, and 3688; nine additional hours of approved courses numbered 3000 or above); and MATH 3689 or 3791.

A major in Mathematics also requires CSCI 1201 plus laboratory and related work consisting of 18 hours of approved courses in an area outside the Mathematics Department. All students must meet the General Education requirements of the University.

Concentration in Actuarial Science

A Bachelor of Arts degree in Mathematics with an option in Actuarial Science consists of a minimum of 34 hours of mathematics and statistics courses including MATH 1241, 1242, 2241, 2242, 2164, 2171, 3163, 3688, and 3689. Upper-division courses must include MATH 3122, 3123, 3128, and 3129. It is strongly recommended that students also take STAT 3126.

The program also requires CSCI 1214 and at least 18 hours of related work consisting of ACCT 2121, 2122, ECON 1201, 1202, FINN 3120, and 3271. In addition, it is strongly recommended that students take FINN 3272 or 3273. All students must meet the General Education requirements of the University.

BACHELOR OF SCIENCE

A major in Mathematics for the B.S. degree consists of a minimum of 40 semester hours of approved MATH, STAT or OPRS courses. In addition to the requirements for the B.A. degree, the major in Mathematics for the B.S. degree requires the completion of six additional hours of approved mathematics, operations research, or statistics courses numbered 3000 or above (exclusive of MATH 3163), as well as a minimum of 11 hours of science courses. Upper-division courses must include MATH 3141, 3142, and at least one course from among STAT 3123 and MATH 4163, 4164, 4181, and 5143.

Note: Students applying for either the B.A. or B.S. degree in Mathematics must have a grade point average of at least 2.0 in each of the following categories: (1) all MATH, STAT, and OPRS courses taken and (2) all 2000 level and above MATH, STAT, and OPRS courses taken.

MATHEMATICS MINOR

A minor in Mathematics requires 18 semester hours including MATH 1241, 1242, and one of 2164 or 2171; one course chosen from MATH 2241, 2242, 2164, 2171, STAT 2122, OPRS 2111, or any three-hour MATH, STAT, or OPRS course number 3000 or above; two

three-hour MATH, STAT, or OPRS courses numbered 3000 or above; and an average GPA of at least 2.0 in these courses.

MINOR IN ACTUARIAL MATHEMATICS

A minor in Actuarial Mathematics requires MATH 1241, 1242, 2241, 2164, STAT 3122 and STAT 3123; and a minimum average GPA of 2.0 in these courses.

Completion of these courses will help prepare the student for the first two actuarial examinations administered by the Society of Actuaries and the Casualty Actuarial Society. The first actuarial exam should be taken as soon as possible after completing Calculus I, II, III and Linear Algebra, and the second examination after completing Probability and Statistics II. Further examinations cover material contained in MATH 3176, OPRS 3111, 3113, and STAT 5123, 5124.

HONORS PROGRAM IN MATHEMATICS

The purpose of the Honors Program in mathematics is to stimulate the imagination and deepen the understanding of students by encouraging independent study and to provide recognition of exceptional achievements in mathematics. Students who complete the requirements of the program graduate with Honors in mathematics.

Admission. Entrance to the Mathematics Department Honors Program is granted by the Mathematics Department, based on the following minimum requirements: (1) junior or senior standing; (2) at least 20 hours in mathematics, including MATH 1241, 1242, 2241, 2171, 2164, and 3163; and (3) a grade point average of not less than 3.0 in mathematics courses and in all University courses.

Students must apply to the Mathematics Department for admission to the program and, if admitted, must select a mathematics faculty member who is willing to serve as an Honors advisor. The Department recommends students admitted to the program to the University Honors Council for formal admission to Honors candidacy. (In order to graduate with Honors the University requires that students be admitted to Honors candidacy at least two semesters before graduation.)

Honors Courses. A Junior Honors Seminar (MATH 3790) and a Senior Honors Tutorial (MATH 3791) are offered, both of which may be repeated for credit.

Certification Requirements. The requirements for graduation with Honors are: (1) completion of all requirements for a Bachelor of Science degree in Mathematics with a grade point average of 3.00 or better; (2) a grade point average of 3.25 or better in all mathematics, operations research and statistics courses and a GPA of 3.5 or better in all mathematics Honors courses; (3) completion of at least six hours of senior honors tutorial (MATH 3791) with a GPA of 3.5 or better, culminating in an Honors thesis approved by the Mathematics Department; and (4) recommendation by the Mathematics Department to the University Honors Council that the student graduate with Honors.

Either the student or the Department may withdraw the student from the Department Honors Program. If the date for dropping courses has passed when the student leaves the program, the student must complete any courses currently in progress in order to receive passing grades in the courses.

COOPERATIVE EDUCATION PROGRAM

A student may participate in the Mathematics Cooperative Education Program in either the parallel or alternate track. The parallel track combines academic study and cooperative experience during the same semester, while the alternate track alternates semesters totally devoted to work with semesters totally devoted to academic study. Students in the Mathematics Cooperative Education Program must participate in a minimum of two semesters in the program. Students interested in participating in the program should contact the Coordinator of Undergraduate Programs in the Department of Mathematics for information.

Museum Studies

INTERDISCIPLINARY STUDIES

Coordinator: Associate Professor Levy

The Museum Studies minor is designed to prepare students for entry-level positions in the museum profession. Students interested in the Museum Studies minor should contact the Museum Studies Coordinator in the Department of Sociology and Anthropology for further information.

The Museum Studies minor requires 18 semester hours beginning with MSTS 2101 and including an internship. Other courses should be discussed with the coordinator.

Department of Music

Chairperson: Professor Lumpkin; *Professor*: Dillard; *Associate Professors*: Bulow, Dailey, Harding, Mosley, Price; *Assistant Professors*: Marks, Volk-Stalcup

The Department of Music offers courses for majors and non-majors ranging from theory, music appreciation, and private lessons (applied music) and to History of Rock Music and various jazz courses. Some specialty courses are offered, such as foreign language diction for singers, literature for the guitar, composition, and music history. Students gain performing experience through a variety of large and small ensembles, either instrumental or vocal, which are offered for academic credit.

A major in Music leading to the Bachelor of Music (B.M.) degree offers the student a basic education in music performance or music education.

Some music graduates move directly into the profession as performers or teachers, but most opt for advanced training in graduate programs or apprenticeships with professional organizations. Some music majors use their undergraduate training as a foundation for other professions, such as arts management, various private businesses, or church music work.

All music courses and most performances are held in Rowe Arts Building, a facility that is shared with the Departments of Art and Dance and Theatre. The building contains a recital hall, two rehearsal rooms, a digital piano lab, an electronic music (MIDI) studio, two theaters, dance studios, various visual arts studios, classrooms, practice rooms, and faculty offices. Construction begins on a state-of-the-art music facility in June 2001.

BACHELOR OF MUSIC (B.M.) IN PERFORMANCE

The Bachelor of Music in Performance degree consists of 67 semester hours of music including six semesters of structure and style, four semesters of ear training, two semesters of music history, eight semesters of private instruction on the student's principal instrument or voice, and eight semesters of major ensemble. A junior recital (20-30 minutes) and a senior recital (at least 50 minutes) must be presented; authorization to present a recital may be granted only following a hearing by the music faculty.

Each student majoring in Music is required to perform in an appropriate major ensemble each semester enrolled, attend regular Wednesday student recitals, perform at least once a semester in a Wednesday recital, attend seven additional concerts each semester, take applied music lessons each semester enrolled, perform in a jury at the end of each semester, pass the piano proficiency exam, and pass the sophomore screening. Please review the departmental Student Handbook for details.

BACHELOR OF MUSIC (B.M.) IN MUSIC EDUCATION

The Music Education track of the Bachelor of Music degree is designed to prepare the student for a career as a public or private school music teacher and results in K-12 licensure in the State of North Carolina.

The program is divided into three concentration areas: Instrumental, Vocal, and General (elementary classroom) Music. This is a four-year program requiring 124 credits. It requires 48 hours of music and no elective hours for students with an Instrumental Music Concentration, 45 hours of music and 3 hours of electives for the Voice Concentration, and 44 hours of music and 4 hours of electives for the General Music Concentration. All students will take 27 hours in education/licensure and 49 hours in General Education. For specific course requirements of the Music Education track, refer to the Department of Music Student Handbook.

Each student majoring in Music Education is required to perform in an appropriate major ensemble each semester enrolled, attend regular Wednesday student recitals, perform at least once a semester on a Wednesday recital, attend seven additional concerts each semester, take applied music lessons each semester enrolled, perform in a jury at the end of each semester, pass the piano proficiency exam and pass the sophomore screening. Please review the department Student Handbook for details.

Licensure applications are the responsibility of the student and the Office of Student Academic Services in the College of Education.

Neuroscience Studies

INTERDISCIPLINARY STUDIES

Coordinator: Dr. Andrew Harver

Neuroscience is the scientific study of the nervous system. The field of neuroscience developed from unprecedented growth in biological psychology, neuroanatomy, and neurobiology during the past several decades. It is a field that brings together biology and chemistry with studies of anatomy, physiology, and behavior, including human emotional and cognitive functions. The Interdisciplinary Program in Neuroscience is designed to provide students with intensive introduction to the neural sciences, including broad exposure to the current contributions of different disciplines to understanding brain-behavior relationships. Students fulfilling the requirements for a Neuroscience minor should be especially prepared for graduate training in the neural sciences in Departments of Psychology, Biology, or Neuroscience, or for professional training in a variety of behavioral and biomedical careers including gerontology, medicine, clinical neuropsychology, and psychiatric nursing. Because the methodologies and techniques employed by active neuroscientists encompass many traditional academic fields, course work in the neural sciences at UNC Charlotte is provided by a variety of academic departments.

Neuroscience Minor. The minor in Neuroscience is awarded only to students completing an undergraduate major at UNC Charlotte. A minor in Neuroscience consists of 18 semester hours: nine hours must come from a set of restricted electives and nine hours must come from a set of unrestricted electives. A maximum of nine hours may be in the department of the student's major; the number of hours, if any, that may be used to fulfill both the requirements for the minor and the requirements for the student's degree program (i.e., major) is determined by the Department. To qualify for the Neuroscience Minor, students must have a grade point average of at least 2.0 in courses applied to the minor. Because additions and deletions of courses may be made to correspond to current University offerings, students are encouraged to consult with the Program Coordinator as they plan their schedules.

Restricted Electives (9 Hours minimum)

BIOL 3271 Cellular Neuroscience (3)

BIOL	3274	Systems Neuroscience (3)
PSYC	3313	Neuropsychology (3)
PSYC	3316	Cognitive Neuroscience (3)

Unrestricted Electives (9 Hours)

BIOL	3271	Cellular Neuroscience (3)
BIOL	3271L	Neuroscience Laboratory (1)
BIOL	3274	Systems Neuroscience (3)
BIOL	4279	Neurobiology (3)
CSCI	3120	Introduction to Computer Graphics (3)
CSCI	3152	Symbolic Programming (3)
CSCI	3153	Introduction to Artificial Intelligence (3)
ENGL	4050	Mind and Language (3)
NURS	3103	Pharmacology in Health & Illness (3)
NURS	3254	Psychiatric-Mental Health Nursing (5)
PHIL	3245	Philosophy of Mind (3)
PSYC	3118	Research Methods in Psychological Psychology (4)
PSYC	3140	Basic Processes in Physiological Assessment (3)
PSYC	3313	Neuropsychology (3)
PSYC	3316	Cognitive Neuroscience (3)

Academy for Neuroscience. The Academy of Neuroscience at UNC Charlotte was established in 1993 to promote scholarship and teaching in the neural sciences and sponsors a variety of formal and informal neuroscience lectures throughout the academic year to complement knowledge gained in the classroom and in the laboratory.

The Academy invites student members and interested students should contact the Program Coordinator for information and application.

Department of Philosophy

Chairperson: Vacant; *Bonnie E. Cone Distinguished Professor in Teaching:* Lincourt; *Mecklenburg County Medical Society Distinguished Professor in Healthcare Ethics:* Tong; *Professors:* Gay, Fishman, *Professor Emeritus:* Shumaker; *Associate Professors:* Croy, Kaplan, Presler, Toenjes; *Lecturers:* Caste, Eldridge

Philosophy is reasoned inquiry about the nature of persons, reality, thought, knowledge, values, and beauty. It seeks to establish standards of evidence, to provide rational methods of resolving conflicts, and to create techniques for evaluating fundamental ideas, principles and arguments in all areas of human existence and knowledge. Equally concerned with human endeavor in both the arts and the sciences, philosophy continues to reside at the core of a liberal education.

Students major or minor in Philosophy because of their desire to pursue fundamental ideas, principles, and arguments in general or in relation to other disciplines. Philosophy helps students develop strong skills in writing, critical thinking, reading, and understanding complex texts. These skills are indispensable for any committed and concerned citizen. The study of philosophy also provides a deeper understanding and enjoyment of the challenges and issues people face throughout their personal and professional lives.

Students may choose to major solely in Philosophy, or to pursue it as a second major or as a minor. As several members of the department teach regularly within Interdisciplinary Studies, many philosophy courses introduce a wide range of ethical, political, scientific, technological, literary, and aesthetic ideas into discussions of philosophical issues. Courses in critical thinking and logic are a benefit to students in all their coursework and can be especially useful to students who plan to enter graduate school or professional school. Given the department's association with the *Center for Professional and Applied Ethics,* many philosophy courses give students a deeper understanding of contemporary issues in business, law, medicine, public policy, information technology, and environmental studies.

BACHELOR OF ARTS

A major in Philosophy leading to a B.A. degree consists of a minimum of 30 semester hours in philosophy, at least 15 of which are earned at UNC Charlotte with a grade of *C* or better, with no more than nine hours below the 3000 level counting toward the major. A GPA of 2.5 is required for all philosophy courses applied to the major. The Philosophy major also requires competency in a language other than English as follows: the 2201 "Intermediate I" level course (or equivalent) in a modern language that uses the Latin alphabet (French, German, Italian, Spanish, etc.), or the 1202 "Elementary II" level course (or equivalent) in a classical language (Greek or Latin) or a language that does not use the Latin alphabet (Japanese, Russian, etc.). Non-native English speakers may complete this requirement by passing ENGL 1101 and ENGL 1102 (or equivalent). Students must elect a concentration in either Traditional or Applied Philosophy.

Concentration in Traditional Philosophy

Students who select a concentration in Traditional Philosophy are required to take PHIL 2101(Introduction to Philosophy), 2105 (Deductive Logic), 3211 (Ancient), 3213 (Modern), and 3214 (Contemporary). Of the remaining 15 hours, at least nine must be in a traditional historical period or figure (e.g., Medieval, American, Introduction to Political Philosophy, Plato, Descartes) or in a traditional problem area (e.g., Aesthetics, Ethics, Metaphysics, Feminist Philosophy, Social and Political Philosophy). Further specification of traditional periods, figures, and problems is given in the Philosophy Department Manual available in the Department or at http://www.uncc.edu/colleges/arts_and_sciences/philosophy.

Concentration in Applied Philosophy

Students who select a concentration in Applied Philosophy are required to take PHIL 2101 (Introduction to Philosophy), either 1105 (Critical Thinking) or 2105 (Deductive Logic), and at least two courses in a traditional historical period, figure or problem. Of the

remaining 18 hours, at least 12 are to be selected from courses in applied philosophy (e.g., Business Ethics, Philosophy in and of Literature, Healthcare Ethics). These courses may represent a theme in which the student has a particular interest and be planned in consultation with the student's advisor. The selected theme will reflect the student's interests in a particular area which may coincide with a second major. This theme may involve requirements outside of the Philosophy Department, but only philosophy courses may be counted toward the 30 hours required for the major.

PHILOSOPHY MINOR

A minor in Philosophy consists of 15 semester hours in philosophy, at least nine of which are earned at UNC Charlotte with a grade of *C* or better, with no more than six hours below the 3000 level counting toward the minor. Students who elect the minor are required to take the following courses and types of courses: PHIL 2101; one course in Logic (PHIL 1105, 2105, or 3235); and two courses in a traditional historical period, figure, or problem area. Traditional historical periods or figures include History of Ancient, Medieval, Modern, Contemporary, and American Philosophy, Introduction to Political Philosophy, Plato, and Descartes. Traditional problem areas include Aesthetics, Ethics, Metaphysics, Feminist Philosophy, and Social and Political Philosophy. Further specification of traditional periods, figures, and problems is given in the Philosophy Department Manual available in the Department or at http://www.uncc.edu/colleges/arts_and_sciences/philosophy.

HONORS PROGRAM IN PHILOSOPHY

Students seeking a greater academic challenge may contact the Department Chair with a request to pursue the Honors Track within the philosophy major. Honors work may be undertaken as early as the first semester a student is enrolled at the University. Graduation with Honors will be noted on the student's transcript and the phrase "Honors in Philosophy" inscribed on the student's diploma.

To qualify for graduation with Honors in Philosophy a student must receive the recommendation of the Honors Committee in Philosophy. The Honors Committee will consider as candidates for Honors in Philosophy students who have completed the standard philosophy major and the following requirements: a) two three-hour courses chosen by the student from University Honors courses; b) a grade of *A* for four hours of honors thesis research (which count toward the 30-hour major requirement); c) oral presentation of the Honors Thesis before the Philosophy Department Honors Committee, other faculty, and students; d) GPA of at least 3.5 in all Philosophy courses counted toward the major; and e) GPA of at least 3.2 for all departmental and University Honors courses submitted towards graduation with Honors.

Department of Physics

Chairperson: Vacant; *Professors:* Farahi, Leamy; *Professors Emeritus:* Almeida, Pollak, Vermilion, Werntz; *Associate Professors*: Aktas, Mayes, Melton, Moyer, Raja, Simpson, Tyson; *Associate Professor Emeritus:* Oberhofer; *Assistant Professor:* Tranmell; *Adjunct Professors:* Edwards, Splinter, Svenson

Undergraduate study in physics is designed for students who seek simply to better understand the physical universe, as well as for students who will seek employment in a technical field following graduation, continue professional study, or teach science in the public schools. The Department offers programs leading to the Bachelor of Arts and the Bachelor of Science degrees. Students who graduate with a bachelor's degree in Physics may pursue graduate study in physics, engineering, or computer science, or study in optometry or the medical field.

Physics students have special opportunities at UNC Charlotte. The Department of Physics is large enough to afford a variety of experiences for the students, but not so large that the student loses personal access to the faculty. Each student has the opportunity to work closely with individual faculty members of his/her choice, both in formal laboratory courses and on individual research projects.

Some upper-level undergraduates have the opportunity to assist faculty members in teaching introductory physics laboratories. This gives students practical training as well as an employment opportunity usually available only to graduate students.

BACHELOR OF ARTS

A major in Physics leading to the B.A. degree consists of at least 27 semester hours in physics with an average grade of *C* or better, including eight hours in an introductory sequence of either PHYS 1101, 1102, 1101L, 1102L or PHYS 2101, 2102, 2101L, 2102L. The remaining 19 hours must include PHYS 2181, 3101, 3141, and eight additional hours at the 3000-4000 level. PHYS 3000, 4000 and 4800 may be used to fulfill the 27 semester hour requirement only if approved for this purpose by the Undergraduate Studies Committee. Also required are CHEM 1251, 1251L, and ENGL 2116. MATH 1241, 1242, 2241, 2242, and 2171 are prerequisites for certain physics courses. Freshmen should complete MATH 1241 before the beginning of their second year.

BACHELOR OF ARTS: SECONDARY TEACHER LICENSURE OPTION

Students preparing to teach high school physics may become licensed by earning the B.A. Degree: Secondary Teacher Licensure Option. A major in Physics with this option consists of a minimum of 120 semester hours that fulfill the general degree requirements of the University and that include at least 27 semester hours in physics with an average grade of *C* or better. Of these 27 hours, eight

hours consist of an introductory sequence of either PHYS 1101, 1102, 1101L, 1102L or PHYS 2101, 2102, 2101L, 2102L. The remaining 19 hours must include, PHYS 2181, 3101, 3121, 3141, 3282, 3283, and at least 1 additional hour at the 3000-4000 level. PHYS 3000, 4000 and 4800 may be used to fulfill the 27 semester-hour requirement only if approved for this purpose by the Undergraduate Studies Committee. Also required are CHEM 1251, 1251L, ENGL 2116, and other courses specified by the Department of Middle, Secondary, and K-12 Education. MATH 1241, 1242, 2242, and 2171 are prerequisites for certain physics courses. Freshmen should complete MATH 1241 before the beginning of their second year.

A schedule to complete the Secondary Teacher Licensure Option within a 4-year period has little flexibility due to the large number of required courses and the specific mathematics prerequisites for certain required physics courses. The student should obtain a SUGGESTED SCHEDULE from the Physics Department, make arrangements for an advisor in the Department of Middle, Secondary, and K-12 Education, and obtain an up-to-date listing and schedule for required education courses. Licensure applications are the responsibility of the student and the Office of Student Academic Services in the College of Education.

BACHELOR OF SCIENCE

A major in Physics leading to the B.S. degree consists of at least 37 semester hours in physics with an average grade of *C* or better, including eight hours in an introductory sequence of PHYS 2101, 2102, 2101L, 2102L. Under special circumstances, and with the approval of the Undergraduate Studies Committee, PHYS 1101, 1102, 1101L, 1102L may be substituted for the PHYS 2101-2102 introductory sequence. The remaining 29 hours must include PHYS 2181,3101, 3121, 3141, 3282, 3283, 4231; at least two hours selected from PHYS 3281, 4281, 4181, or 3900; and at least six additional hours at the 3000-4000 level. PHYS 3000, 4000, and 4800 may be used to fulfill the 37 semester-hour requirement only if approved for this purpose by the Undergraduate Studies Committee. Also required are CHEM 1251, 1251L; CSCI 1214; and ENGL 2116. MATH 1241, 1242, 2241, 2242, and 2171 are prerequisites for certain physics courses. Freshmen should complete MATH 1241 before the beginning of their second year. Students who did not take physics in high school should consider taking PHYS 2101. Students planning for graduate study in physics are strongly recommended to take more than the minimum 37 hours of physics and should include PHYS 4222, 4232, 4241, 4242 and MATH 2242.

BACHELOR OF SCIENCE: SECONDARY TEACHER LICENSURE OPTION

Students preparing to teach high school physics may become licensed by earning the B.S. Degree: Secondary Teacher Licensure Option. The student must (a) fulfill all requirements for the B.S. Degree and (b) complete the additional courses required by the College of Education. The student should make arrangements for an advisor in the Department of Middle, Secondary, and K-12 Education, and obtain an up-to-date listing and schedule for required education courses. It is generally not possible to complete this option within four years without attending summer sessions. Licensure applications are the responsibility of the student and the Office of Student Academic Services in the College of Education.

BACHELOR OF SCIENCE: APPLIED PHYSICS OPTION

A major in Physics leading to the B.S. degree with the applied physics option requires a minimum of 31 semester hours in physics, eight semester hours in chemistry, nine semester hours of computer science, and 19 semester hours of engineering, with an average grade of *C* of better in all required courses. The 31 hours of required courses in physics are PHYS 2101, 2102, 2101L, 2102L, 2181, 3101, 3121, 3141, 3282, 3283, 4231, and either 3281, 4281, 4181, or 3900. The required courses in computer science are CSCI 1100P or 1201 and its laboratory, CSCI 2140 and 2141. The minimum engineering requirement consists of CEGR 2101, MEGR 3171, ESGR 2141 and 2144, ECGR 2161 and 2162, and MEET 3133. Students in this track are encouraged to select one of their free electives from PHYS 4271 and 4140. MATH 1241, 1242, 2241, 2242, 2171 and ENGL 2116 are prerequisite courses for some required physics courses.

PHYSICS MINOR

A minor in Physics is available to all undergraduates except physics majors and requires a minimum of 17 hours of physics with an average grade of *C* or better. There are two options:

Option 1: PHYS 2101, 2102, 2101L, 2102L, 3141, and at least six additional hours in physics selected from PHYS 2181, 3000, 3101, 3121, 3151, 3281, 3282, 3283, 3900, 4000, 4140, 4241, 4222, 4231, 4232, 4242, 4281, and 4800. PHYS 3000, 4000, and 4800 may be used only if approved for this purpose by the Undergraduate Studies Committee.

Option 2: PHYS 1101, 1102, 1101L, 1102L, 3101, 3141, and at least three additional hours in physics selected from PHYS 2181, 3000, 3101, 3121, 3151, 3281, 3282, 3283, 3900, 4000, 4140, 4241, 4222, 4231, 4232, 4242, 4281, and 4800. PHYS 3000, 4000, and 4800 may be used only if approved for this purpose by the Undergraduate Studies Committee.

HONORS PROGRAM IN PHYSICS

To obtain a degree with Honors in physics, the student must successfully complete an Honors section of PHYS 3900 and Honors sections of at least two courses selected from PHYS 4222, 4232, and 4242. The student must formally enter the Honors Program no later than the beginning of the second semester of the junior year. The Honors Committee of the Physics Department must approve admission. Details concerning this program are available from the Physics Department.

COOPERATIVE EDUCATION PROGRAM

Students majoring in Physics have an opportunity to combine work experience with their academic experience. The Cooperative Education Program is a plan whereby a student completes his/her lower-division coursework and, after being formally accepted as a co-op student, alternates periods of academic coursework with periods of paid employment in an area mutually agreed upon by the student, an employer, and the University. This program enables the student to integrate classroom instruction with practical on-the-job experience with business, industry, government agencies, or other employers. A student electing this option should expect to graduate in five years, instead of the four years normally required. Further information regarding Cooperative Education can be found elsewhere in this *Catalog*. Information regarding the application procedure for admission into this program can be obtained from the Physics Department.

Department of Political Science

Chairperson: Professor Arrington; *Professor Emeritus*: Dorin, Jamgotch, McCoy, Mead; *Distinguished Professors*: Brandon, Godwin, Sommer; *Professors*: Brenner, Chemotsky, Lyons; *Associate Professors*: Bacot, C. Brown, M. Brown, Combs, Fleitas, Rassel, *Assistant Professors*: Bradley, Heberlig, Johnson, Leland, Wallace, Walsh, Weeks, Walker; *Instructor:* Caste

Political science is the study of politics: government, law, political behavior, public policy, and political philosophy. The political science curriculum is designed primarily to afford broad and modern training in the study of political institutions and political behavior for students in the liberal arts and majors planning graduate work. It also affords career-oriented or preprofessional training for teaching, law, business, public relations, or work in the mass media, domestic and foreign government service, the military, teaching, and a variety of active roles in politics.

On the graduate level, the Department offers the Master of Public Administration, a professional degree for persons seeking training in public administration with specialization in local government and non-profit management. (For more information, see the *Graduate School Catalog*.)

BACHELOR OF ARTS

A major in Political Science for the B.A. degree requires 30 semester hours of political science to include: (1) POLS 1110 (Introduction to American Politics); (2) POLS 1130 (Introduction to Comparative Politics); (3) POLS 1150 (Introduction to International Politics); (4) at least one course in the subfield of Political Philosophy; (5) POLS 4220 (Research Methods). No more than nine hours of credit from POLS 3110, 3163, 4400 or 4800 can be offered to fulfill major requirements.

Related Work. Political Science majors must complete the following related work:

1. STAT 1222 or the equivalent; AND
2. The 2201 level course (or the equivalent) in a modern language other than English that uses the Latin Alphabet (e.g., French, German, Italian, Portuguese, Spanish) or the 1202 course (or the equivalent) in a modern language that does not use the Latin Alphabet (e.g., Arabic, Chinese, Greek, Japanese, Russian). Non-native English speakers may complete the foreign language requirement by completing ENGL 1101 and ENGL 1102 (or the equivalent).

Concentration in Comparative and International Politics. Students may opt to receive the Bachelor of Arts in Political Science with a concentration in Comparative and International Politics. Requirements include at least 18 hours (as part of the required 30 hours in political science) in courses listed under International Politics or Comparative Politics and Area Studies. Majors seeking this concentration are encouraged to diversify their coursework by completing the major or minor in International Studies.

Concentration in Public Policy. Students may earn the Bachelor of Arts degree in Political Science with a concentration in Public Policy by completing 18 hours (as part of the required 30 hours in political science) in public policy courses. This 18 hours must include POLS 2120 and at least 15 hours selected from: POLS 3124, 3125, 3126, 3132, 3157, 3161, 3169, 3175 or some other public policy course specifically designated by the Chair of the Political Science Department. To receive the concentration in Public Policy the student must also complete an introductory economics course (ECON 1100, 1201, or 1202). Note that both ECON 1201 and 1202 are highly recommended, but not required.

Advanced Placement Program. Students who receive an evaluation of Qualified (3) or better on the Advanced Placement examination in American Politics will receive credit for POLS 1110. Students who receive an evaluation of Qualified (3) or better on the Advanced Placement examination in Comparative Politics will receive credit for POLS 1130.

POLITICAL SCIENCE MINOR

The political science minor requires: 18 semester hours of political science to include: (1) POLS 1110 (Introduction to American Politics); (2) POLS 1130 (Introduction to Comparative Politics); (3) POLS 1150 (Introduction to International Politics); and (4) at least one course in the subfield of Political Philosophy.

HONORS PROGRAM

To graduate with Honors in Political Science and have this fact affixed to the student's transcript, a student must:

a. Comply with all of the requirements for a major in Political Science;
b. Complete at least two Honors courses in the University Honors Program or in individual

departments with a GPA at UNC Charlotte of at least 3.25;
c. Have an overall GPA at UNC Charlotte of at least 3.25;
d. Have a GPA of at least 3.4 in all Political Science courses taken at UNC Charlotte;
e. Complete the Senior Thesis in Political Science (POLS 4990) with a grade of *A* and licensure of the Department Honors Committee that the thesis deserves a grade of *A* and is of Honors quality;
f. Be admitted formally to Honors candidacy by the University Honors Council at least two semesters before graduation.

To be certified as Honors quality, a thesis must contain original research and demonstrate a high degree of scholarship. Students seeking the Honors designation must notify the professor who is directing their thesis no later than the second week of classes that the thesis should be evaluated for Honors requirements. The directing professor will notify the Honors Committee. Students would work on their thesis under the same procedures as all other students, but would then submit their thesis for evaluation by the Honors Committee. Faculty members who serve on the Honors Committee would not evaluate senior theses completed under their supervision. Instead, the Honors Committee would ask another faculty member to evaluate the thesis in question along with the other two members of the Committee. If the Committee agreed to confer Honors on the student's thesis, it would certify this to the Department Chair. If the Committee decided that the thesis did not warrant Honors, the student would still receive whatever grade the faculty member supervising the thesis had assigned.

Department of Psychology

Interim Chairperson: Professor Grimsley; *Bonnie E. Cone Distinguished Professor in Teaching:* Maisto; *Professors*: Calhoun, Cann, Foos, Goolkasian, Grimsley, Harver, Tedeschi, Terry, Toner; *Professors Emeritus*: Diamant, Lamal, Windholz; *Associate Professors*: Buch, Cook, Fernald, Gaultney, Gilmore, Kaplan, Lee, McAnulty, Siegfried, Van Wallendael; *Associate Professors Emeritus:* Long, Sohn; *Assistant Professors*: Blanchard, Johnson, Kilmer, Terrell; *Lecturer:* Spaulding

Psychology is the study of behavior. Psychologists are interested in discovering new knowledge about human and animal behavior and in applying that knowledge. Some of the questions psychology considers are:

How do we learn and remember information?
Why do people develop behavior disorders?
What are the changes involved in moving from infancy to old age?
How do other people influence our behavior?
How is behavior regulated by the brain?
How do we perceive the physical world?
How do psychological factors affect physical health?

Psychology is a young and a dynamic science and profession. Most of what we know has been learned in the last 50 years. Much is left to be learned by the psychologists of the future.

The Psychology Department offers a B.A., B.S., an undergraduate minor in Psychology, and a Master of Arts degree. The primary objective of the undergraduate programs is to provide a solid background in the fundamentals of psychology as a science. Graduates of the program should be prepared for a variety of careers or for graduate study.

Although many careers in psychology require an advanced degree, opportunities for individuals with a bachelor's degree in psychology include serving as a teacher or psychological assistant in social service agencies, mental health centers, child care centers, centers for the retarded or the emotionally disturbed, and juvenile delinquent or predelinquent homes. Students whose interests are more laboratory-oriented might become laboratory technicians or research assistants. Also, psychology majors find their skills useful in various areas of business, such as management, advertising, personnel, public relations, and marketing.

Graduate school is a possibility after the student completes the B.A. or the B.S. degree. For a psychologist with a master's degree or doctorate, the career opportunities grow. (See *The Graduate School Catalog* for information on the M.A. program.) In addition, many psychology graduates broaden their skills by attending graduate schools in the areas of business, counseling, criminal justice, education, and law.

BACHELOR OF ARTS

A major in psychology leading to the B.A. degree consists of 29 hours of psychology. These hours must include General Psychology (1101 and 1101L), Research Methodology (2102), History and Systems (3103), a Senior Seminar (4613, 4619, 4625, 4630, 4650, 4655, 4660, or 4670), one unrestricted elective, and two courses from each of two Restricted Elective categories: Scientific Foundations of Practice and Scientific Psychology.

Scientific Foundations of Practice: Students will select at least two courses which must be from different areas:
Area 1: Individual Differences and Dysfunctional Behavior (PSYC 2150, 3135, 3151)
Area 2: Human Development (PSYC 2120, 2121, 2124)
Area 3: Practice (PSYC 2160, 2171, 3155)

Scientific Psychology: Students will select at least two courses which must be from different areas.
Area 1: Biological Aspects (PSYC 3110, 3113, 3115, 3117)
Area 2: Cognitive/Affective Aspects (PSYC 3111, 3114, 3116, 3316)
Area 3: Social Aspects (PSYC 3130)
Area 4: Psychological Measurement (PSYC 3140)

Students must select at least three hours of electives in psychology to fulfill the 29-hour requirement for the B.A.

Electives should be selected to aid the student in the attainment of personal goals. However, the student

cannot include more than three hours credit in PSYC 3405 and three hours credit in PSYC 3806 in the 29-hour requirement of the major, nor will the student be allowed to apply more than eight hours in PSYC 3405 or PSYC 3806 to the 120 hours required for the B.A.

Other specific course requirements for the B.A. degree include: STAT 1222 (Elements of Statistics) and one of the four following Skill Options:

1. Foreign Language: One course at the 2000 level or above in a language other than English. American Sign Language may be used to meet this requirement. Non-native English speakers may complete the foreign language requirement by passing ENGL 1101 and 1102; **or**
2. Statistics: Any statistics course above STAT 1222; **or**
3. Math: Any MATH course above MATH 1101; **or**
4. Computer Science: Any Computer Science excluding CSCI 1101.

Related Work. Students pursuing a B.A. in Psychology are expected to be exposed to a depth of knowledge in at least one domain outside of psychology through their completion of the Related Work Requirement. Related Work should be considered in terms of the fulfillment of individual educational and vocational aspirations. Students must select one of the following options.

Option 1: Complete a second major.
Option 2: Complete a minor in a domain outside Psychology.
Option 3: When a minor is not available in the student's chosen Related Work domain, a Related Work concentration of no fewer than 18 semester hours, *approved in writing by the Psychology Department,* can be substituted. Approval of a Related Work concentration must be obtained at least one full semester prior to graduation.

A GPA of 2.0 must be achieved for the second major, minor, or Related Work concentration.

BACHELOR OF SCIENCE

A major in psychology leading to the B.S. degree consists of 35 hours of psychology. These hours must include General Psychology (1101 and 1101L), Research Methodology (2102), History and Systems (3103), a Senior Seminar (4613, 4619, 4625, 4630, 4650, 4655, 4660, or 4670), nine hours of unrestricted electives, and two courses from each of two categories: Scientific Foundations of Practice and Scientific Psychology.

Scientific Foundations of Practice: Students will select at least two courses which must be from different areas:

Area 1: Individual Differences and Dysfunctional Behavior (PSYC 2150, 3135, 3151)
Area 2: Human Development (PSYC 2120, 2121, 2124)
Area 3: Practice (PSYC 2160, 2171, 3155)

Scientific Psychology: Students will select at least two courses which must be from different areas.

Area 1: Biological Aspects (PSYC 3110, 3113, 3115, 3117)
Area 2: Cognitive/Affective Aspects (PSYC 3111, 3114, 3116, 3316)
Area 3: Social Aspects (PSYC 3130)
Area 4: Psychological Measurement (PSYC 3140)

Students must select at least nine hours of electives in psychology to fulfill the 35-hour requirement for the B.S.

Electives in psychology should be selected to aid the student in the attainment of personal goals. However, the student cannot include more than three hours credit in PSYC 3405 and three hours credit in PSYC 3806 in the 35-hour requirement of the major, nor will the student be allowed to apply more than eight hours in PSYC 3405 or PSYC 3806 to the 120 hours required for the B.S.

Other specific course requirements for the B.S. degree include: STAT 1222 (Elements of Statistics) and one of the four following Skill Options:

1. Foreign Language: One course at the 2000 level or above in a language other than English. American Sign Language may be used to meet this requirement. Non-native English speakers may complete the foreign language requirement by passing ENGL 1101 and 1102; **or**
2. Statistics: Any statistics course above STAT 1222; **or**
3. Math: Any MATH course above MATH 1101; **or**
4. Computer Science: Any Computer Science excluding CSCI 1101.

Reasoning and Natural Science Requirements. Students pursuing a B.S. in Psychology are expected to be exposed to a depth of knowledge in reasoning and the natural sciences. Students must select from one of the following options:

Option 1: Complete a second major in Biology or Chemistry or Computer Science or Math.
Option 2: Complete a minor in Biology or Chemistry or Computer Science or Math or Neuroscience or other minor approved by the Department.
Option 3: Complete six hours from among: PHIL 1105; PHIL 2105; PHIL 3235; PHYS 1101; Any CSCI; Any OPRS; Any MATH above 1105; Any STAT above 1222.
AND
complete 18 hours of biology or chemistry including at least three courses with labs and any two additional courses from the areas of Biology and Chemistry.

A GPA of 2.0 must be achieved for the second major, minor, or Option 3 hours.

Course Sequences Within the Major. The Psychology Department offers course sequences designed to provide a more in-depth exposure to certain areas of Psychology. Sequences are currently available in Clinical, Cognitive, Community, Developmental, Health, Industrial/Organizational, Physiological, and Social Psychology, Neuroscience, and Psychometrics. In addition, the Psychology Department actively participates in several interdisciplinary areas of study including Gerontology, Neuroscience, Women's Studies, and Cognitive Science. Detailed information about course sequences and interdisciplinary areas of study is contained in the Psychology Department tudent Handbook which is available in the Psychology Office or on line at: http://www.uncc.edu/colleges/arts_and_sciences/psychology/.

Consult the Department of Psychology web page for a Suggested Schedule to complete the B.A. or B.S. degree with a Major in Psychology.

PSYCHOLOGY MINOR

A minor in psychology consists of 19 semester hours of psychology to include PSYC 1101, 1101L, and a minimum of one course from both the Scientific Foundations of Practice Area and the Scientific Psychology Area. A minimum of six hours of coursework at the 3000 level or above is required. No more than three semester hours of PSYC 3806 may be counted toward the minor and PSYC 3405 may not be used for the minor.

Department of Religious Studies

Chairperson: Associate Professor St. Clair; *Isaac Swift Distinguished Professor:* Cohen; *Blumenthal Professor:* Reeves; *Professors*: Meyer, Reeves, Tabor, Thomas; *Associate Professors:* Getz, Johnson, White; *Assistant Professor*: Robinson; *Lecturer:* Marshall

Religious studies is the academic inquiry into the fundamental stories, myths, symbols, and practices by which we as human beings have attempted to make sense of ourselves and the worlds in which we live. In addition to courses in western, asian, african, and native american religious traditions, the department offers courses in the interaction of religion and modern culture in such areas as art, literature, language, film, dreams, and issues of race and gender. The department is explicitly committed to the liberal arts tradition with an international and pluralistic perspective.

Most students major or minor in Religious Studies to gain a broad liberal arts education. With the flexibility of the program and its relationship to other areas of the University, students can meet the specific objectives of Religious Studies while taking a wide range of courses in other departments. Some students relate religious studies to definite vocational plans, often requiring further education in professional and graduate schools.

BACHELOR OF ARTS

A student may satisfy the requirement for the religious studies major leading to the B.A. degree after completing either of the following programs:

(A) Course Program in Religious Studies. This option requires 30 semester hours in religious studies courses, including RELS 2101 (Introduction to Western Religious Thought), 2102 (Introduction to Asian Religions), 2600 (Orientation to the Major), and 3600 (Senior Seminar); five 3000 level or above courses (two in the academic study of a single religious tradition, one from a second tradition, and two in religion and modern culture); and at least two elective courses. Lists of courses appropriate to each of these categories are available in the departmental office.

The Religious Studies major also requires proficiency in a foreign language through the 2201 level or completion of Arabic, Biblical Hebrew, Koine Greek, or Sanskrit at the 1202 level.

(B) Interdisciplinary Program in Religious Studies. This option is intended to provide a course of study which will make maximum use of the interdisciplinary aspects inherent in religious studies. After several courses in religious studies, a student may submit, after consultation with his or her advisor, a proposal for a program of study for the junior and senior years. If the proposal is approved by the Department, the student will satisfy the requirement for a major in Religious Studies by completing the approved program rather than by taking any specified number of religious studies courses. This is not an Honors program, and any student may submit a proposal to the Department. A detailed description of this program may be obtained from the office of the Department of Religious Studies.

RELIGIOUS STUDIES MINOR

A minor in Religious Studies consists of a minimum of 15 hours, with at least two courses at the 3000 level or above.

Department of Social Work

Chairperson: Professor Popple; *Baccalaureate Program Director:* Associate Professor Fullmer; *Professor:* Dudley; *Associate Professors:* Cousins, Morrow; *Assistant Professor:* Winston; *Lecturers:* Jordan, Seamon

The Department of Social Work offers academic majors in Social Work leading to the Bachelor of Social Work (B.S.W.) degree. On the graduate level, the Department offers the Master of Social Work degree.

B.S.W. Social work is a profession devoted to helping people function as effectively as possible within their environment. Social workers assist people in doing this by providing assessment, counseling, referrals, mediation, and advocacy services and by working to improve social conditions. The beginning practice for a B.S.W. graduate

includes providing social services, family counseling, and crisis intervention. There are opportunities to work with all age groups. The B.S.W. program provides knowledge and skills used by social workers in the medical, mental health, and mental retardation fields, schools, child welfare, family, and other social service settings. It also provides an excellent foundation for graduate careers involving advanced practice, planning, administration, and evaluation of social services. The B.S.W. program prepares graduates for North Carolina Social Work Certification.

SOCIAL WORK MAJOR: BACHELOR OF SOCIAL WORK

A major in Social Work leading to the B.S.W. degree consists of a minimum of 73 semester hours including 36 hours of SOWK courses. Core courses in the social work major are designed to build upon each other and are taken in sequence. Students must have senior standing and complete all courses in the major before Field Placement.

The core courses for the social work major are: SOWK 1101, 2182, 2183, 3100, 3120, 3181, 3182, 3184, 3201, 3202, 3482/3484, 3683/3685, one social work elective and one social work or gerontology elective. Other required courses for the social work major are SOCY 1101, 2171, 4156: POLS 1110; BIOL 1110 & Lab; and PSYS 1101 and 3151.

SOCIAL WORK MINOR

A minor in social work requires 18 hours in social work courses as follows: SOWK 1101, 2182, 2183 and three SOWK electives to be approved by the Social Work Program. The minor does not prepare students for professional social work practice.

Department of Sociology and Anthropology

Chairperson: Professor Brody; *Professor Emeritus*: Ferraro; *Professors:* Mickelson, Shenk, Webster; *Associate Professors:* Levy, Aulette, Bonney, Forrest, Hopcroft, Lance, Pearson, Scheid, Starrett Whitmeyer, Zablotsky; *Assistant Professors:* Marks, Peacock, Rashotte, Wayland; *Lecturer:* Rutledge

The Department of Sociology and Anthropology offers academic majors in Anthropology and Sociology leading to a Bachelor of Arts degree. On the graduate level, the Department offers the M.A. degree in Sociology.

Anthropology. Anthropology is the study of humans and their cultures and is organized into four subfields: cultural anthropology, archaeology, biological anthropology, and linguistics. It focuses upon human cultural heritage and upon the biological and evolutionary aspects of humans that relate to cultural development. It emphasizes the comparative study of humans and the cross-cultural analysis of their institutionalized responses to fundamental human needs.

The study of anthropology is relevant for people whose occupations and endeavors require an understanding of human nature and biology, human history and prehistory, and the variety of cultures humans have developed. It is particularly useful for teachers, medical personnel, social workers, and persons seeking careers in business and communications, as well as persons who plan to work in or with foreign countries. It provides competencies needed for employment in such organizations as museums, government agencies, school systems, corporations, police departments, the Park Service, and the Bureau of Indian Affairs.

Sociology. Sociology is the scientific study of human social life. It focuses upon the forces that organize and structure societies and smaller groups, as well as the forces that disorganize and threaten to dissolve them. As a science, sociology applies an objective and systematic method of investigation to identify the patterns and forms of social life and to understand the processes by which they are established and changed.

The study of sociology is attractive to persons seeking a liberal education and immediate employment, as well as to persons preparing for further study and professional careers. As a liberal arts program, it enables students to understand the social contexts in which they find themselves and the social forces that shape personality, actions, and interactions with others. As a preprofessional program it provides an excellent background for persons entering social work, law, teaching, the ministry, journalism, planning, public relations and personnel services. It also provides analytical skills related to market research and program evaluation in human services, sales, management and other business activities.

ANTHROPOLOGY MAJOR: BACHELOR OF ARTS

A major in Anthropology leading to the B.A. degree requires completion of; (1) 34 semester hours of anthropology, including ANTH 1101, 2141, 2151, 3101 and 4601; (2) 18 semester hours of electives in anthropology, including at least six semester hours in cultural anthropology; and (3) completion of ANTH 4601 with a grade of *C* or better. Also required are 18 semester hours of related work to be arranged in consultation with the student's advisor and organized around a region, an allied discipline or theme, or minor in another approved discipline. In addition, for students entering the program in Fall 2001 and later, anthropology majors must complete a foreign language through the 2201 level. Non-native speakers of English may complete the foreign language requirement by passing ENGL 1101 and 1102 or the equivalent. Students should consult the Department concerning internships and field schools in anthropology.

ANTHROPOLOGY MINOR

The minor in Anthropology requires the completion of 18 hours of anthropology including ANTH 1101 and 15 hours of electives with at least one course in each of three subdivisions of anthropology: cultural anthropology, biological anthropology, and archaeology. A grade point average of at least 2.0 is required in the 18 hours of anthropology.

SOCIOLOGY MAJOR: BACHELOR OF ARTS

A major in Sociology leading to the B.A. degree consists of: (1) a minimum of 32 semester hours of sociology courses; including (2) a core curriculum of SOCY 1101, 3153, 4155, and 4156; (3) at least 23 hours at the 3000 level or above (but may include SOCY 2090); and (4) a minimum of 18 semester hours of related work or a minor. In addition, for students entering the program in Fall 2001 and later, sociology majors must complete a foreign language through the 2201 level. Non-native speakers of English may complete the foreign language requirement by passing ENGL 1101 and 1102 or the equivalent.

Related work is arranged by the student in consultation with an advisor and may consist of a concentration of courses: (1) within a single discipline; (2) selected from two complementary disciplines; or (3) focused upon a specific topic. Students in the teacher licensure program may use the courses in the professional education sequence as their related work. Students should consult with the Department about internship opportunities in sociology.

SOCIOLOGY MINOR

The minor in Sociology requires the completion of 18 hours in sociology including Introduction to Sociology and at least one course at the 3000 or 4000 level. A grade point average of at least 2.0 is required in the 18 hours of sociology.

HONORS PROGRAM IN ANTHROPOLOGY

An Honors Program in Anthropology will be initiated in Fall 2001. Interested students should contact the Coordinator of Anthropology.

EARLY ENTRY PROGRAM: Master's in Sociology

Criteria for Acceptance

1. Students must have completed at least 75 undergraduate hours.

2. Students must have at least a 3.2 GPA overall, and a 3.5 GPA in Sociology courses.

3. The student must take the GRE exam and earn scores that are acceptable for graduate admission.

The Program

Students who meet the above requirements will be accepted into the Graduate Program, conditional upon their successful completion of the requirements for their undergraduate degree, 18 hours in social science, and the required core undergraduate classes (Evolution of Social Thought, Research Methods, and Statistics).

Students will be allowed to take only 15 hours of graduate credit before they have completed their baccalaureate degree. They must maintain an undergraduate GPA of at least 2.7 in order to remain in the program. Students' undergraduate GPA must be at least 3.0 when they graduate.

Students may count only six hours for both under-and graduate degrees. Neither the Pro-seminar in Applied Social Research nor electives may be counted toward both the B.A. and the M.A.

Urban Studies

INTERDISCIPLINARY STUDIES

URBAN STUDIES MINOR

Coordinator: Assistant Professor H. A. Smith

A minor in Urban Studies requires completion of 18 hours taken from the following courses: ANTH 2125 (Urban Anthropology) or SOCY 4125 (Urban Sociology); ARCH 1100 (History of American Architecture); GEOG 2165 (Patterns of World Urbanization); GEOG 3100 (City and Region); GEOG 4205 (Internal Structure of the City); HIST 3281 (American Cities); HIST 3214 (Urban South); or POLS 3121 (Urban Politics). A student may also count up to nine hours of other courses that have a significant urban focus with the prior permission of the Coordinator of the Urban Studies minor in the Department of Geography and Earth Sciences.

Women's Studies

INTERDISCIPLINARY STUDIES

Coordinator: Assistant Professor L. Kaplan; *Adjunct Professor:* Gabaccia, Miller, S. Nkomo, D. Shenk, M. Strawn; *Adjunct Associate Professor:* Aulette, Bell, Booth, Bosley, Clark, Newman, Presler, Ryan, Shenk, Stephenson, Van Wallendael, Yon; *Adjunct Assistant Professor*: Bezner, Langford, Mickelson, Pizzato, Russi, Tweedy, Wayland; *Adjunct Lecturer:* D. Smith; *Adjunct Program Associate:* Haigler, Houlihan, Masse, Mozenter

The Women's Studies Program offers undergraduate and graduate students opportunities to learn about issues relating to gender, women, and feminism. Students may choose to take individual courses, a cluster of related courses, or a full minor in Women's Studies. Most students find Women's Studies courses personally interesting, as well as helpful preparation for careers in health and human services, education, law, human resources, art, and business.

MINOR IN WOMEN'S STUDIES

The Women's Studies minor is open to all students regardless of gender and requires completion of at least 18 hours in approved courses offered by the Women's Studies Program and other departments and programs. A maximum of nine hours may be earned from any one department or program outside of Women's Studies. Students minoring in Women's Studies must complete the following requirements:

WMST 1101 Introduction to Women's Studies (3) **OR**
WMST 3102 Changing Realities of Women's Lives (3)

WMST 3220 Feminist Thought (3) **OR**
WMST 3227 Feminist Philosophy (3) **OR**

Another Approved WMST topics course (to be determined by coordinator)

WMST 4000 level course

The remaining nine hours may be satisfied through elective courses.

Elective courses can be chosen from any department's or program offerings, as long as (a) the course deals substantially with gender, women, feminism, or related social movements and (b) the courses are approved by the Women's Studies Program Coordinator.

Students minoring in Women's Studies should check their choices of electives with the Women's Studies Program Coordinator, both when they are planning their minor and when they are reviewing it in preparation for graduation.

Examples of courses that have been approved to count as Women's Studies electives include, *but are not limited to:*

AAAS	2215	Black Families in the U.S.
DANC	1101	American Dance: A Cultural Reflection
HIST	2150	History of Women in the U.S.
HIST	3168	Women and Family in Modern East Asia
SOCY	2132	Marriage and Family
SOCY	3143	Social Movements
SOCY	4163	Sex Roles
WMST	3050	Women's Works on Film
WMST	3212	Women and Peacebuilding
WMST	4050	Sexuality and Gender
WMST	4050	Women and Leadership

Additional Electives Selections:

ANTH 2090/WMST 2050	Native American Women
ART 3001/WMST 3050	Women in Art
COMM 3050/WMST 3050	Gender in Communication
ENGL 4000/WMST 4050	Masculinity in African-American Literature
GRNT 4260/WMST 4260	Women: Midlife and Beyond
MGMT 3050/WMST 4050	Race, Gender, Class and Life Histories
NURS 4050/WMST 4050	Community Interventions in Domestic Violence
NURS 4191/WMST 4191	Women's Health Issues
PHIL 3227/WMST 3227	Feminist Philosophy
PSYC 3226/WMST 3226	Psychology of Women
SPAN 3019/WMST 3050	Hispanic Women Writers in English Translation

A complete list of courses approved for the minor in Women's Studies is available in the Women's Studies Program Office.

GRADUATE COURSES

The Women's Studies Program now regularly offers advanced graduate-level courses for students wishing to include the study of women, gender, or feminism in their graduate work. These courses, which are broad in scope, enable graduate students to pursue their own research while they develop a substantial background in the field. Graduate offerings include:

WMST 6050/LBST 6000	Language, Gender, and Power
WMST 6050/PHIL6050	Feminist Theory and Its Applications
WMST 6800	Directed Reading/Research

The Women's Studies Program also regularly offers 4000 level courses designed for graduate students and advanced undergraduate students. Graduate students can receive permission from their program coordinators to take these courses for graduate credit. See the above list of elective courses for recent 4000 level offerings.

Graduate students interested in taking Women's Studies courses should contact the Women's Studies Program Coordinator.

The Belk College of Business Administration

Dean: Professor Lilly; *Associate Dean*: Associate Professor Conboy

Mission and Objectives. The Belk College of Business Administration serves the people of the Charlotte region and international communities. The College serves these constituents through the delivery of undergraduate and graduate programs in business administration and related interdisciplinary fields and through the development and dissemination of new knowledge. Through continuous improvement, the College seeks to maintain high standards in its programs and its intellectual contributions. In carrying out its mission, the College is committed to maintaining diversity within the faculty and student body.

To accomplish its mission, the faculty of the College engages in three major activities: teaching, intellectual contributions, and public service. The College believes that scholarship informs teaching and, therefore, the College emphasizes both teaching and intellectual contributions. The College values the work of the faculty in the discovery of new knowledge through basic research and its practical applications. The College's commitment to excellence in teaching ensures that the scholarship of teaching through instructional development is recognized as an important form of intellectual contribution. Faculty engage in a third activity of public service through outreach programs, applied scholarship, and other activities that promote the economic health and the development of the region.

In support of this mission, the College has the following strategic objectives:

- To provide and support undergraduate education through a broad range of programs in business administration that are excellent in quality, current in curricula, and relevant to business practice
- To provide and support graduate programs of distinction that serve the needs of the community, meet the demands of the student population, utilize the expertise of the faculty, and support the University mission
- To encourage and support the faculty in areas of basic research, applied research, instructional development andin their efforts to secure funding for intellectual contributions
- To develop and maintain research programs of distinction that support the economic competitiveness and the development of the greater Charlotte metropolitan region and state
- To meet the needs of the community for the continued development of leadership, management, and technical skills in business and other organizations through executive education and other outreach programs
- To develop and maintain lifelong partnerships with the alumni of the College.

Programs. The Belk College of Business Administration offers the following bachelor's degree programs:

Bachelor of Science degree in Accounting. This program offers full academic preparation for the Certified Public Accountant (CPA) designation.

Bachelor of Science in Business Administration degree. The B.S.B.A. degree encompasses a full range of academic disciplines within the area of Business Administration. The degree provides breadth in the context and operation of the business enterprise through the business core curriculum and depth in a specialized area through the selection of a major. Majors are offered in:

Finance
Industrial and Operations Management
International Business
Management
Management Information Systems
Marketing

Bachelor of Arts degree in Economics. This program offers a Business Administration emphasis and a Social Science emphasis. The Department of Economics also offers a minor in Economics.

Honors Program: The Honors Program is available to undergraduate students majoring in one of the College's degree programs. Students meeting eligibility requirements enroll in specialized coursework designed to provide enhanced challenges and learning opportunities in business administration.

Programs are designed so that transfer students from community colleges and other institutions may enter the program and complete their degree requirements in the last two years of their college work. Students planning to take their first two years in community colleges should inform their advisor or counselor of their intent to apply to UNC Charlotte so that their program may be tailored to facilitate transfer.

The College offers several master's programs, including the Master of Business Administration, the Master of Science (M.S.) degree in Economics, and the Master of Accountancy. Programs are designed to accommodate the needs of both full-time and part-time students. *(See the Graduate Catalog for information about these programs.)*

Accreditation. All of the degree programs offered by the Belk College of Business Administration are accredited by the AACSB--The International Association for Management Education. AACSB is the premier accrediting agency for bachelor's, master's, and doctoral degree programs in business administration and accounting. AACSB is also the professional organization for management education

Course Level and Course Prerequisite Restrictions: The Belk College strongly enforces course level and course prerequisites. Freshman and sophomore level classes should be completed while the student is a freshman and sophomore, and upper-division classes (3000 level) are restricted to students with junior or senior standing. Students must meet the prerequisites stated for courses in the College. A student may not enroll in any class for which the student has not completed the prerequisites. **Students enrolling in MGMT 3280, Business Policy, must have achieved senior level status and have completed all core classes.**

College Residency Requirements: In addition to meeting University residency requirements, all students seeking undergraduate degrees in The Belk College must complete at least 50% of the required business credit hours and 50% of the required credit hours in the upper-level major at UNC Charlotte. Additionally, at least half of the hours required for an undergraduate degree in The Belk College of Business must be taken outside of The College.

Experiential Learning Opportunities. Students are encouraged to participate in professional work experiences that support academic and career development. The College is working with the University Career Center to expand experiential learning offerings to enable more students to graduate with career-related experience. The largest of these programs is Cooperative Education.

Cooperative Education involves professionally related, paid work experiences in multiple semesters. It does not offer academic credit, but it is noted on the student's transcript. To participate in this program, students must have a GPA of at least 2.5, meet specific departmental requirements, and pay a participation fee. Approval for enrollment must be arranged before the student begins the work experience. Most students begin this program during their junior year; transfer students must complete one semester at UNC Charlotte before making application for the program. Students maintain full-time student status during their co-op work semesters.

For further information, and to explore other credit and non credit experiential learning opportunities including internships, contact major Department Chairperson or the University Career Center.

Evening and Weekend Courses and Summer Sessions. All courses required in the Bachelor of Science in Business Administration degree program and the Bachelor of Science degree program in Accounting are offered in the evening, as well as during the day. The Master of Business Administration and the Master of Accountancy degree programs are offered in the evening. A program of summer offerings is also available. Some coursework is also available on weekends.

Scholarships. There are several scholarships available for students in The Belk College of Business Administration. Some of the scholarships are designated to recognize academic excellence in the junior and senior years. Further information can be obtained from the Financial Aid Office.

PRE-ACCOUNTING, PRE-BUSINESS, AND PRE-ECONOMICS

Students who do not meet all requirements for direct admission to the upper-division of the College are admitted to the lower-division, provided the student meets College admission requirements. Students seeking the B.S. degree in Accounting are designated as Pre-Accounting majors. Students seeking the B.S.B.A. degree with a major in Finance, International Business, Management, Management Information Systems, Marketing, or Operations Management are designated as Pre-Business Majors. Students seeking the B.A. degree in Economics are designated as Pre-Economics majors. Students may be admitted to the upper-division major once all progression requirements are satisfied. Progression requirements for each major are described in the sections that follow.

Students must have progressed to an upper-division major to be eligible to enroll in the upper-division electives. Lower-division students may not enroll in MGMT 3280.

BUSINESS HONORS PROGRAM

The Business Honors program provides students access to a range of opportunities designed to stimulate their thinking and broaden their exposure to topics related to business issues.

Admission. Students majoring in The Belk College of Business Administration must complete an *Application for Admission* to the Honors Program in Business and conduct an interview with the Program Coordinator. Admission to the program is based on the student's demonstrated Honors potential (determined by examining GPA, SAT scores, courses completed, academic and other distinctions, and other factors) and availability of space in the program. If the GPA's of a student admitted to the program drop below those required for graduation for two successive semesters, the student will be dismissed from the program.

Courses. Students in the Business Honors Program must complete 18 semester hours including BUSN 3780 and 3790, nine hours in business honors sections, and three hours from the University Honors Program. Honors courses cannot be repeated and students in the program are permitted to repeat no more than one non-Honors course.

Certification Requirements. To graduate with "Honors in Business," a student must complete the required Honors courses, submit an application for Honors Candidacy at least two semesters prior to graduation, receive a grade of at least *B* in BUSN 3790, and present a GPA of at least 3.3 overall and 3.3 in all Honors courses for which a grade was assigned.

Department of Accounting

Chairperson: Professor Godfrey; *Professor:* Schroeder; *Professors Emeriti:* Turner; *Associate Professors:* Bhamornsiri, Blankley, Cathey, Cornick, Gunn, Malmgren; *Associate Professor Emeritus:* Hinson,

Williamson; *Associate Professor:* Burton; *Assistant Professors:* Blanthorne, McWhorter; *Big-Five Endowed Chair in Accounting:* Wiggins; *Lecturers:* Palmer, Piazza

Mission of the Department of Accounting

The mission of the Department of Accounting at the University of North Carolina at Charlotte is to prepare qualified students of diverse backgrounds for careers in professional accounting and business, and to engage in activities that result in meaningful intellectual contributions. The Department also seeks to promote the accounting profession through interaction with the business community.

Program Objectives

The program provides a learning environment in which students acquire conceptual and technical knowledge in the accounting and business areas as well as other essential capabilities for a successful career. The undergraduate accounting curriculum is designed to enable students to:

a. effectively develop, measure, analyze, validate, and communicate financial and other information,
b. understand the concepts and methods of economics, finance, marketing, quantitative methods, management, information systems and business, and
c. develop skills, competencies and learning capacities that are essential for a broad education.

Program Outcomes

Graduates find a wide range of careers in public accounting, industry, financial institutions, government and non-profit organizations.

A student who plans to become licensed as a certified public accountant in North Carolina must complete an additional 30 semester hours of academic study beyond the undergraduate accounting education. A student can meet this requirement by completing the Master of Accountancy Program.

Accreditation

The Accounting program is accredited by the AACSB--The International Association for Management Education. AACSB is the premier accrediting agency for bachelor's, master's and doctoral degree programs in business administration and accounting. AACSB also is the professional organization for management education.

BACHELOR OF SCIENCE

In addition to the General Education requirements of the University, the following 24 courses are required for a B.S. degree in Accounting: ACCT 2121, 2122, 3136, 3111, 3112, 3113, 3140, 3211, 3148 or 3121; BLAW 3150, an oral communications course, ECON 1201, 1202; FINN 3120, INFO 2130, 3130; MATH 1100, 1120; MGMT 3140, 3280; MKTG 3110, OPER 3100, POLS 1110, STAT 1220.

Students may place out of MATH 1100 with the math placement test. A student must take at least 90 hours outside of Accounting and must take at least 54 hours outside The Belk College. At least 50% of the accounting business credit hours required for an Accounting degree must be earned at the University of North Carolina at Charlotte. At least 50% of the required accounting courses at the 3000 level or higher must be completed at UNC Charlotte.

To obtain a B.S. degree in Accounting, a student must meet the University requirements of a GPA of at least 2.0 overall and in the *24* courses for the major listed above, and must have a 2.0 GPA in all 3000 level required ***business and*** accounting courses ***with no more than one D left standing for these courses.*** When a student repeats a course for credit, both the old grade and the new grade are included in the computation described in the preceding sentence. Approval by the Chair of the Accounting Department is required before a student may repeat a course for credit more than once. Consult the Department of Accounting for a Suggested Schedule to complete the B.S. degree with a major in Accounting.

Requirements. To be accepted into the accounting major and to progress into the upper-division of the College, a student must have: (1) attained junior standing; (2) completed ACCT 2121 and 2122, ECON 1201 and 1202, MATH 1120, and STAT 1220 with an average GPA of 2.4 or better and a *C* or better in each course; (3) earned at least a *C* in INFO 2130 (Introduction to Business Computing) or have passed the College Microcomputer Proficiency Test; (4) have a GPA of at least 2.0 for all academic work; and (5) filed an approved "Program of Study" in the College Office of Student Records. Students may attempt each of the six courses in (2) above a maximum of two times. In the calculation of the six-course GPA, only the most recent attempt is calculated. However, all attempts are used in the calculation of overall GPA and major GPA. Students who are not successful in earning the required 2.4 GPA are ineligible for continuation in The Belk College.

Classification as Pre-Accounting Students. Students seeking admission to the accounting major will be classified as pre-accounting students within the Belk College of Business Administration until they qualify for acceptance to the accounting major. Pre-accounting students who have earned at least 60 hours are permitted to enroll in core business courses if they have met the course prerequisites and have earned at least a *C* in INFO 2130 or have passed the College Microcomputer Proficiency Test. **Students must complete all requirements and be accepted into an upper-division major to be eligible to enroll in MGMT 3280 and the upper-division business electives.**

The following Accounting courses are limited to students with a major in The Belk College of Business Administration: (1) ACCT 3111, (2) ACCT 3121, (3) ACCT 3122, (4) ACCT 3136, and (5) ACCT 3140. All other Accounting courses at the 3000 level or higher are limited to Accounting majors, except ACCT 3150, ACCT 3200, and ACCT 3500.

Core, Mathematics and Statistics Requirements. Courses that fulfill the College core and mathematics and statistics requirements are: ACCT 2121, 2122; BLAW 3150; ECON 1201 and 1202; FINN 3120; INFO 2130 and 3130; MGMT 3140 and 3280; MKTG 3110; OPER 3100; MATH 1100 and 1120; and STAT 1220. A student must have a GPA of at least 2.0 for all academic work.

Cooperative Education Program. Students in the Department of Accounting may obtain practical work experience related to their major by participating in the Cooperative Education Program. The work experience arranged in coordination with the University Career Center must be closely related to the study of accounting and must be approved by the Co-op Advisor in the Accounting Department.

To be eligible for cooperative education, students must be juniors who have an overall GPA of at least 2.5 and have completed the progression courses required by The Belk College of Business Administration. Transfer students must complete at least 12 hours at UNC Charlotte to be eligible for cooperative education. Completion of courses related to the co-op position may be required prior to the co-op work experience. These courses will be established by the Co-op Advisor. Students must complete either two full-time alternating semesters of work or three consecutive part-time work semesters while taking a reduced academic load of no more than nine credit hours. Students selected to work in a public accounting firm or for an internal audit position may complete program requirements by working one semester and either writing a paper or making a formal presentation before faculty and students.

Business Information Systems and Operations Management Department

Chairperson: Professor Saydam; *Professors*: Barnes, Cooper; *Associate Professors*: Aytug, Hogue, Khouja, Kumar, Robbins, Stylianou; *Assistant Professors*: Smith, Winter; *Lecturers*: Brown, J. Geurin, Johnson, Otto

The Business Information Systems and Operations Management Department offers majors in two dynamic disciplines - Management Information Systems (MIS) and Industrial and Operations Management (IOM). The focus of these majors is development of information technology and operations managers who can enhance the productivity of the firm in a knowledge-driven economy. Both majors offer students an integrated background in the functional areas of business and focus on enhancing problem solving and critical thinking skills using current technology.

A major in MIS involves the application of information technology and analytical skills to the solution of organizational problems and opportunities for innovation. MIS graduates are prepared for positions in the design, planning, development, implementation, and management of e-business information systems and systems support.

A major in IOM focuses on the efficient use of resources to provide quality goods and services. IOM enables students to pursue such careers in supply chain management, production planning, project management, quality assurance, and operations. Environments in which IOM graduates are in high demand include health care, government, manufacturing, and service industries.

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

Students majoring in Management Information Systems receive a Bachelor of Science in Business Administration degree with a major in Management Information Systems. The B.S.B.A. degree requires a minimum of 120 semester hours, including 42 hours of core courses within The Belk College of Business Administration, 21 hours in the major (beyond the core), nine hours of mathematics and statistics, and completion of the University General Education requirements. In addition to the nine hours of mathematics and statistics, at least 42 hours of coursework must be taken outside The Belk College of Business Administration.

Students majoring in Industrial and Operations Management receive a Bachelor of Science in Business Administration degree with a major in Industrial and Operations Management. The B.S.B.A. degree requires a minimum of 120 semester hours, including 42 hours of core courses within The Belk College of Business Administration, 15 hours in the major (beyond the core), nine hours of mathematics and statistics, and completion of the University General Education requirements. In addition to the nine hours of mathematics and statistics, at least 42 hours of coursework must be taken outside The Belk College of Business Administration.

Courses that fulfill the College core and mathematics and statistics requirements are: ACCT 2121, 2122; BLAW 3150; ECON 1202, 2102, and 3125; FINN 3120; INFO 2130 and 3130; MGMT 3140, 3160, and 3280; MKTG 3110; OPER 3100; MATH 1100 and 1120; and STAT 1220. Students must have a GPA of at least 2.0 for all academic work and for the major with no more than one *D* left standing in the major. Courses for computation of the GPA in the major include the business core, mathematics courses, and hours specified for the MIS or IOM major. No course may be repeated more than twice.

Progression Requirements. To be accepted into the MIS major and to progress into the upper-division of the College, students must have: (1) attained junior standing with an overall GPA of 2.5; (2) completed ACCT ACCT 2121 and 2122; ECON 1202 and 2102; MATH 1120; and STAT 1220 with a grade of *C* or better in each course; (3) earned at least a *C* in INFO 2130 (Introduction to Business Computing) or have passed the College Microcomputer Proficiency Test; and (4) filed an approved "Program of Study" in the College Office of Student Records.

Students may attempt each of the above six courses a maximum of two times. In the calculation of the minimum 2.5 GPA for these six courses, only grades from the most recent attempt will be included.

Pre-Business students who have earned at least 60 hours are permitted to enroll in core business courses if they have met the course prerequisites and either have earned at least

a *C* in INFO 2130 or have passed the College Microcomputer Proficiency Test. **Students must complete all progression requirements and be accepted into an upper-division major to be eligible to enroll in MGMT 3280 and the upper-division business electives.**

Cooperative Education Program. Management Information Systems and Industrial/Operations Management majors may obtain practical work experience related to their major by participating in the cooperative education program. To be eligible for cooperative education, students must be juniors who have an overall GPA of at least 2.5 and have completed the progression courses required by The Belk College of Business Administration. Transfer students must complete at least 12 hours at UNC Charlotte to be eligible for cooperative education. Completion of courses related to the co-op position may be required prior to the co-op work experience. These courses will be established by the Co-op Advisor. Students must complete either two full-time alternating semesters of work or three consecutive part-time work semesters while taking a reduced academic load of no more than nine credit hours.

MANAGEMENT INFORMATION SYSTEMS/MAJOR

The primary objective of the Management Information Systems (MIS) major is to prepare students for careers in the information systems function of organizations. The curriculum is designed to provide both technological and managerial knowledge relevant to the development and use of computer-based information systems.

The following courses are required:

ITCS	1214	Introduction to Computing I
INFO	3231	Business Application Development
INFO	3233	Business Database Systems
INFO	3234	Business Information System Development
INFO	3239	Business Data Communications

One of the following courses is required:

INFO	3235	Advanced Business Information Systems Development
INFO	3240	Fundamentals of eBusiness

Two of the following courses are required:

INFO	3000	Special Topics in MIS
INFO	3232	International Information Systems Management
INFO	3236	Decision Support Systems
INFO	3238	Current Issues in the Management of Information Systems
INFO	3800	Directed Study in MIS
OPER	3203	Management Science
OPER	3204	Management of Service and Project Operations
OPER	3206	Managing for Quality
ITIS	2112	Advanced Structured COBOL
ITCS	3112	Design and Implementation of Object-oriented Systems
ITCS	3141	Computer Organization
ITCS	3155	Software Engineering
ITCS	3160	Data Base Design and Implementation
ITCS	3166	Distributed Computer Info. Systems
ACCT	3140	Accounting Information Systems

Students majoring in Management Information Systems are strongly encouraged to participate in the University cooperative education program, which provides substantial educational and employment opportunities. Furthermore, many companies hire only students who have participated in the cooperative education program.

INDUSTRIAL AND OPERATIONS MANAGEMENT MAJOR

The primary objective of the Industrial and Operations Management (IOM) major is to provide an understanding of technical and systematic approaches to designing production/operations systems and solving business problems. Emphasis is on the tools of the field.

Progression Requirements: Students seeking admission to the major in Industrial and Operations Management will be classified as Pre-Business students within The Belk College of Business Administration until they qualify for acceptance into an upper-division major. To be accepted as a major in Industrial and Operations Management and to progress into the upper-division of the college, students must have: (1) attained junior standing; (2) completed ACCT 2121 and 2122, ECON 1201 and 1202, MATH 1120, and STAT 1220 with a GPA of at least 2.4 ("Progression GPA)" and a minimum grade of *C* in each course; (3) earned at least a *C* in INFO 2130 (Introduction to Business Computing) or have passed the College Microcomputer Proficiency Test, or have obtained course "Credit by Exam;" (4) have a GPA of at least 2.0 for all academic work; and (5) filed an approved "Program of Study" in the College Office of Student Records.

Students may attempt each of the six courses (listed above in item 2) two times. In the calculation of the six-course Progression GPA, only the most recent attempt is included. However all attempts are used in the calculation of overall GPA and major GPA. Students who are not successful in earning the required 2.4 GPA are ineligible for continuation in The Belk College.

The following courses are required:

OPER	3201	Advanced Operations Management
OPER	3203	Management Science
OPER	3204	Management of Service and Project Operations
OPER	3206	Managing for Quality

One of the following courses is required:

OPER	3000	Topics in Operations Management
INFO	3231	Business Application Development
INFO	3233	Business Database Systems
INFO	3234	Business Information Systems Development
INFO	3236	Business Decision Support Systems
INFO	3239	Business Data Communications
MKTG	3217	Transportation and Logistics Marketing
INET	3133	Quality Control
ENGR	3670	Total Quality Systems

Residency Requirements: All students must satisfy the College residency requirements.

SUGGESTED SCHEDULE: MANAGEMENT INFORMATION SYSTEMS MAJOR

Freshman Year

ENGL 1101[1] 3
MATH 1100 3
GOAL IV 4
GOAL III 3
GOAL V: (A) 3

ENGL 1102[1] 3
MATH 1120[1,3] 3
GOAL IV 4
GOAL V: (L) 3
Elective 3

Sophomore Year

ACCT 2121[1] 3
ECON 1201[1] 3
STAT 1220[1] 3
GOAL I: (W) (Outside Major) 3
GOAL VI: (C) 3

ACCT 2122[1] 3
ECON 1202[1] 3
GOAL VI: (X) 3
INFO 2130[1] 3
ITCS 1214 3
GOAL IV 4

Junior Year

INFO 3130 3
MGMT 3140 3
OPER 3100 3
INFO 3231 3
GOAL IV 4

INFO 3233 3
INFO 3239 3
FINN 3120 3
MKTG 3110 4
MGMT 3160 (GOAL I: (W)) 3

Senior Year

BLAW 3150 3
INFO 3234 3
ECON 3125 3
Elective 3
MIS Elective 3

MIS Elective 3
MGMT 3280[2] 3
INFO 3235 or INFO 3240 3
Elective 3

SUGGESTED SCHEDULE: INDUSTRIAL AND OPERATIONS MANAGEMENT MAJOR

Freshman Year

ENGL 1101[1] 3
MATH 1100 3
GOAL IV 4
GOAL III 3
GOAL V: (A) 3

ENGL 1102[1] 3
MATH 1120[1,3] 3
GOAL IV 4
GOAL V: (L) 3
Elective 3

Sophomore Year

ACCT 2121[1] 3
ECON 1201[1] 3
STAT 1220[1] 3
GOAL I: (W) (Outside Major) 3
GOAL VI: (C) 3

ACCT 2122[1] 3
ECON 1202[1] 3
GOAL VI: (X) 3
INFO 2130[1] 3
GOAL IV 4

Junior Year

OPER 3100 3
MGMT 3140 3
INFO 3130 3
Elective 3
Elective 3

OPER 3203 3
FINN 3120 3
MGMT 3160 (GOAL I: W) 3
MKTG 3110 3
OPER Elective 3

Senior Year

BLAW 3150 3
ECON 3125 3
OPER 3201 3
OPER 3206 3
Electives 6

MGMT 3280[2] 3
OPER Electives 6
OPER 3204 3
Elective 3

[1] *Prerequisite for upper division required business courses*

[2] *To be taken after all 3000 level required business core courses have been filled.*

[3] *MATH 1141 (Differential and Integral Calculus I) may be substituted for MATH 1120.*

Students preparing for graduate studies are advised to take MATH 1141

Department of Economics

Interim Chair: Professor Sealey; *Interim Assistant Chair:* Professor Gandar; *Professors:* Amato, Connaughton, Davis, Madsen, Schwarz, Zuber; *Professor Emeriti:* Neel, Wubben; *Associate Professors:* Lin, Liner, McGregor, Russo, Tseng, Tucker; *Associate Professor Emeritus:* Rogers; *Assistant Professors:* Sewell, Troyer

The study of Economics offers students a problem-solving discipline to foster their intellectual and career development. It provides students a balanced and broad educational background and prepares them to choose from a wide range of career alternatives.

The Economics program explores the economic decisions of individuals, businesses, governments, and other institutions. It examines the nature of economic activity, why it takes place, and how it affects everyone's lives. The program includes elective courses that enable students to tailor their educational program to meet personal needs and interests. The study of economics also helps students develop a way of thinking that is logical and rigorous. It provides decision-making tools that they can apply to personal as well as business decisions and use to address the many economic decisions they will face in the future.

The Economics Department offers two programs leading to the Bachelor of Arts degree. Students who plan to pursue careers in business-related fields such as banking, finance, and international commerce, or who plan to enter an MBA program, are encouraged to elect the business administration emphasis program. Students planning to pursue a career in education, enter graduate school in economics, or attend law school are encouraged to pursue the program with social science emphasis.

Progression Requirements: Before being admitted to the upper-division or registering for any 3000 or 4000 level course in economics or business, a major in Economics must have:

(1) attained junior standing;
(2) completed ENGL 1101 and 1102, ECON 1201 and 1202, MATH 1120, and STAT 1220 with a minimum grade of *C* in each course and a minimum GPA of 2.4 in these six courses (Progression GPA);
(3) completed INFO 2130 with a minimum grade of *C* or have passed The College of Business Microcomputer Proficiency Test;
(4) attained at least a 2.0 GPA for all academic work.

Students may attempt each of the six courses (listed above in item 2) two times. In the calculation of the six-course Progression GPA, only the most recent attempt is included. However, all attempts are used in the calculation of overall GPA and major GPA. Students who are not successful in earning the required 2.4 GPA are ineligible for continuation of the Belk College

ECONOMICS MAJOR

All majors in Economics must complete MGMT 3160 (Business Communications) prior to registering for any 4000 level Economics course. Students transferring into the Economics program as a senior must complete MGMT 3160 their first semester in the program.

A student majoring in Economics must indicate active progress toward the completion of the requirements for the major in Economics. Failure to do so will result in the student being dropped as an Economics major. A student must be accepted into another major or "undecided" category to continue enrollment at the University.

In computing the GPA in the major all required courses are included. Not more than one grade of *D* will count toward the specified hours for a major in Economics. To be eligible to graduate, a student must have achieved a GPA of 2.0 in all academic work, and **a** GPA or 2.0 in the major.

It is recommended that students who plan graduate work in economics complete MATH 1241, ECON 4100, and, as available, ECON 4112 and 4117. Also, they should consider additional work in mathematics but should consult with their advisors concerning specific courses.

Residency Requirements: All students must meet the College Residency Requirements.

BACHELOR OF ARTS

Business Administration Emphasis. A major in Economics, with business administration electives, leading to the B.A. degree consists of 63 hours specified as follows:

I. Mathematics: Basic Concepts of Mathematics
(MATH 1100) (GOAL II: P) 3
Calculus (MATH 1120) (GOAL II: P) 3
Elements of Statistics (STAT 1220) 3
Business Computing (INFO 2130) 3

II. Economics:
Principles of Economics
(ECON 1201 and 1202) (GOAL VI: C)..... 6
Economics of the Firm (ECON 3125) 3
Econometrics (ECON 3112)..... 3
Industrial Organization and Public Policy
(ECON 4180)..... 3
Intermediate Microeconomics (ECON 3122)..... 3
Intermediate Macroeconomics (ECON 3123) 3

III. Business Administration and Accounting:
Principles of Accounting (ACCT 2121
and 2122) 6
Financial Management (FINN 3120)..... 3
Business Communications (MGMT 3160) 3

Two of the following..... 6
Marketing Management (MKTG 3110)
Business Law I (BLAW 3150)
Operations Management (OPER 3100)
Management Concepts and Practices (MGMT 3140)

IV. Economics Electives: 12
To be selected by the student from the 3000 and 4000 level offerings of the Department of Economics

Social Science Emphasis. A major in Economics, with social science electives, leading to the B.A. degree consists of 63 hours specified as follows:

I. College Algebra and Probability:
Basic Concepts of Mathematics

(MATH 1100) (GOAL II: P).....3
Calculus (MATH 1120) (GOAL II: P) 3
Elements of Statistics (STAT 1220) 3
Business Computing (INFO 2130) 3

II. Economics:
Principles of Economics (ECON 1201 and 1202) (GOAL VI: C) 6
Business Communications (MGMT 3160).....3
Intermediate Microeconomics (ECON 3122).....3
Intermediate Macroeconomics (ECON 3123) 3
Econometrics (ECON 3112).....3
History of Economics Thought (ECON 4177) (GOAL I: W) 3

III. Social Science Electives 15
These electives are to be chosen from a list of approved courses in african-american studies, Anthropology, Geography, History, Political Science, Psychology, Social Work, and Sociology. Electives must be selected in at least two different social science disciplines. The list of approved courses is available in the Economics Department office.

IV. Economics Electives:.....15

Students must choose five Economics electives with at least one at the 4000 level.

Coursework satisfying general University requirements will not count toward the 15-hour Social Science requirement.

Cooperative Education Program. Economics majors may obtain practical work experience related to their major by participating in the cooperative education program. To be eligible for cooperative education, students must be juniors who have an overall GPA of at least 2.5 and have completed the eight progression courses required by the Department of Economics. Transfer students must complete at least 12 hours at UNC Charlotte to be eligible for cooperative education. Completion of courses related to the co-op position may be required prior to the co-op work experience. These courses will be established by the Co-op Advisor. Students must complete either two full-time alternating semesters of work or three consecutive part-time work semesters while taking a reduced academic load of no more than nine credit hours.

ECONOMICS MINOR

A minor in Economics requires: 18 semester hours of economics to include ECON 1201, 1202 and either 3125 or 3122, and at least nine additional hours at the 3000 or 4000 level. A GPA of at least 2.0 is required in the 18 hours.

In computing the GPA in the minor all required courses are included. Not more than one grade of *D* will count toward the specified hours for a minor in Economics. The second and any subsequent grade(s) in a repeated course(s) will be included in all GPA calculations.

SUGGESTED SCHEDULE: BUSINESS ADMINISTRATION EMPHASIS (Economics Major)

Freshman Year

ENGL 1101 3
MATH 1100 3
GOAL IV 4
GOAL V: (A) 3
Elective 2

ENGL 1102 3
MATH 1120 3
GOAL IV 4
Electives 5

Sophomore Year

ECON 1201 (GOAL VI: (C)) 3
INFO 2130 3
ACCT 2121 3
GOAL III 3
GOAL VI: (X) 3

ECON 1202 3
ACCT 2122 3
STAT 1220 3
GOAL I: (W) 3
GOAL V: (L) 3

Junior Year

ECON 3112 3
ECON 3122 3
Economics Elective 3
GOAL I: (W) 3
MGMT 3160 (W) 3
Elective 3
ECON 3125 3
ECON 3123 3
Economics Elective 3
MKTG 3110, BLAW 3150, OPER 3100 or MGMT 3140 3
Elective 3

Senior Year

ECON 4180 3
FINN 3120 3
Economics Elective 3
Electives 6

Economics Elective 3
MKTG 3110, BLAW 3150, OPER 3100, or MGMT 3140 3
Electives 9

SUGGESTED SCHEDULE: SOCIAL SCIENCE EMPHASIS (Economics Major)

Freshman Year

ENGL 1101 3
MATH 1100 3
GOAL IV 4
GOAL V: (A) 3
Elective 2

ENGL 1102.....3
MATH 1120.....3
GOAL IV.....4
Elective.....5

Sophomore Year

ECON 1201 (GOAL VI: (C)).....3
INFO 2130.....3
Social Science Elective.....3
GOAL III.....3
GOAL VI: (X).....3

ECON 1202.....3
Social Science Elective.....3
STAT 1220.....3
GOAL I: (W).....3
GOAL V: (L).....3

Junior Year

ECON 3112.....3
ECON 3122.....3
Social Science Elective.....3
MGMT 3160 (W).....3
Elective.....3
ECON 3123.....3
ECON 4100 or ECON 4112.....3
Economics Elective.....3
Social Science Elective.....3
Electives.....6

Senior Year

Social Science Elective.....3
Economics Electives.....6
Electives.....6
ECON 4177.....3
Economics Electives.....6
Electives.....6

Department of Finance and Business Law

Chair and The Torrence E. Hemby Sr. Distinguished Professor in Banking: Sealey; *Dean and The James J. Harris Professor of Risk Management and Insurance:* Lilly; *The Endowed Professorship in Insurance:* Dorfman; *Professors:* Nunnally, Trosch; *Associate Professors:* Blenman, Kennedy, Lamb, Ott, Plath; *Lecturers:* Baber, Miller

The Department of Finance and Business Law prepares students for financial leadership within organizations and provides them with an understanding of the legal environment in which these organizations operate. In the Department's various programs, students acquire knowledge that enables them to understand:

a. the concepts, processes and institutions involved in planning for, acquiring and allocating capital with respect to modern business organizations;
b. the economic and legal environment of organizations, and the myriad social and political influences on business;
c. the concepts and methods of economics, accounting, mathematics, management, information systems, and business law.

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

A program of study in the Department of Finance and Business Law leads to a Bachelor of Science in Business Administration degree with a major in Finance. The B.S.B.A. degree requires a minimum of 120 semester hours, including 42 hours of core courses within The Belk College of Business Administration, 15 hours in the Finance major, nine hours of mathematics and statistics, and completion of the University General Education requirements. In addition to the nine hours of mathematics and statistics, at least 42 hours of coursework must be taken outside of The Belk College of Business Administration.

Requirements. To be accepted into a major and to progress into the upper-division of the College, students must have: (1) attained junior standing; (2) completed ACCT 2121 and 2122; ECON 1201 and 1202; MATH 1120; and STAT 1220 with a GPA of 2.4 and a minimum grade of *C* in each course; (3) earned at least a *C* in INFO 2130 (Introduction to Business Computing) or have passed the College Microcomputer Proficiency Test (4) have a GPA of at least 2.0 for all academic work; and (5) filed an approved "Program of Study" in the College Office of Student Records.

Students may attempt each of the above courses a maximum of two times. In the calculations of the minimum 2.4 GPA, grades for all attempts are included.

Pre-business students who have earned at least 60 hours are permitted to enroll in core business courses if they have met the course prerequisites and have earned at least a *C* in INFO 2130 or have passed the College Microcomputer Proficiency Test. **Students must complete all requirements to be eligible to enroll in MGMT 3280 and the upper-division business electives.**

Core, Mathematics, and Statistics Requirements. Courses that fulfill the College core and mathematics and statistics requirements are: ACCT 2121, 2122; BLAW 3150; ECON 1201, 1202 and 3125; FINN 3120; INFO 2130 and 3130; MGMT 3140, 3160 and 3280; MKTG 3110; OPER 3100; MATH 1100 and 1120; and STAT 1220. A student must have a GPA of at least 2.0 in all hours attempted.

FINANCE MAJOR: Concentration in Financial Institutions/Commercial Banking, Financial Management, or Risk Management and Insurance

In addition to completing the College core, mathematics and statistics requirements (51 hours), students majoring in Finance must complete 15 hours of coursework in one of three concentrations: Financial Institutions/ Commercial Banking , Financial Management or Risk Management and Insurance. A student must have a GPA of at least 2.0 in all hours attempted and no more than one *D* left standing. No course may be repeated more than once.

Financial Institutions/Commercial Banking

FINN	3220	Financial Analysis
FINN	3221	Financial Institutions and Markets
FINN	3225	Commercial Bank Management
BLAW	3250	Business Law II

and

One additional course from the following:

FINN	3222	Investments
FINN	3223	International Financial Management
FINN	3224	Applied Business Finance
FINN	3226	Financial Theory and Practice
FINN	3261	Real Estate Finance
FINN	3271	Principles of Risk Management and Insurance
FINN	3272	Life Insurance and Professional Financial Planning
FINN	3800	Directed Study (Chair approval required)
FINN	4159	Student Managed Investment Fund

(Instructor preapproval required; FINN 4158 required)

ECON	3112	Econometrics
ECON	3115	Money and Banking
ACCT	3111	Intermediate Financial Accounting I
OPER	3204	Management of Service Operations

Financial Management

FINN	3220	Financial Analysis
FINN	3222	Investments
FINN	3223	International Financial Management
FINN	3226	Financial Theory and Practice

and

One additional course from the following:

FINN	3221	Financial Institutions and Markets
FINN	3224	Applied Business Finance
FINN	3225	Commercial Bank Management
FINN	3261	Real Estate Finance
FINN	3271	Principles of Risk Management and Insurance
FINN	3272	Life Insurance and Professional Financial Planning
FINN	3800	Directed Study (Chair approval required)
FINN	4159	Student Managed Investment Fund

(Instructor preapproval required; FINN 4158 required)

BLAW	3250	Business Law II
ACCT	3111	Intermediate Financial Accounting I
ECON	3112	Econometrics

Risk Management and Insurance

FINN	3271	Principles of Risk Management and Insurance
FINN	3272	Life Insurance and Professional Financial Planning
FINN	3273	Property and Casualty Insurance
FINN	3275	Advanced Risk Management and Insurance

and

One additional course from the following:

FINN	3222	Investments
FINN	3276	Employee Benefits
FINN	3277	Legal Aspects of Insurance
FINN	3800	Directed Study (Chair approval required)
MKTG	3213	Personal Selling and Sales Management
MGMT	3273	Small Business Management

Cooperative Education Program. Finance majors may obtain practical work experience related to their major by participating in the University cooperative education program.

Department of Management

Chairperson: Professor Tepper; *Professors:* Curran, Giacalone, V. Geurin, Hornaday, Kohut; *Associate Professors*: Beggs, Bell, Booth, Carpano, Conboy, Jernigan, Kerr; *Assistant Professors*: Ensley, Henle, Pugh, Zellars; *Lecturers*: Dixon-Brown

A program of study in the Department of Management leads to a Bachelor of Science in Business Administration degree with a major in Management. The Management major is designed to teach students to plan, organize, direct, and control business activities in both the public and private sectors. Students develop skills in decision making, leadership, motivation, and problem solving and teamwork.

Within the Management major, students must select one of three options: Management, Human Resource Management or Entrepreneurship. The option in Management prepares students for management careers in business, industry, and government. Coursework prepares students for entry-level positions in areas such as distribution, manufacturing, retail, service, and transportation. The option in Human Resource Management prepares students to become human resource management professionals. Coursework prepares students for entry-level positions in staffing, recruiting, training and development, compensation administration, and labor relations. The option in Entrepreneurship prepares students to work in small or medium-sized businesses or become small business owners. Coursework prepares students to develop an overall concept for a business and identify the problems that must be considered and resolved if the venture is to be successful. (Note: The option in Management is available both in the day and evening. The options in Human Resource Management and Entrepreneurship are available only during the day.)

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

A major in Management leading to the B.S.B.A. degree requires a minimum of 120 semester hours, including 42 hours of progression and core courses within The Belk College of Business Administration, 15 hours in the management major, nine hours of mathematics and statistics, and completion of the University General Education requirements. In addition to the nine hours of mathematics and statistics, at least 42 hours of coursework must be taken outside the Belk College of Business Administration. Students electing the Management major must meet the following requirements:

Progression Requirements. Students seeking admission to the Department of Management will be classified as Pre-Business students within The Belk College of Business Administration until they qualify for acceptance into an upper-division major. To be accepted as a major in

Management and to progress into the upper-division of the College, student must have (1) attained junior standing; (2) completed ACCT 2121 and 2122, ECON 1201 and 1202, MATH 1120, and STAT 1220 with a GPA of at least 2.4 ("Progression GPA") and a minimum grade of *C* in each course; (3) earned at least a *C* in INFO 2130 (Introduction to Business Computing) or have passed the College Microcomputer Proficiency Test, or have obtained course "Credit by Exam"; (4) have a GPA of at least 2.0 for all academic work; and (5) filed an approved "Program of Study" in the College Office of Student Records.

Students may attempt each of the six courses (listed above in item 2) two times. In the calculation of the six course Progression GPA, only the most recent attempt is included. However all attempts are used in the calculation of overall GPA and major GPA. Students who are not successful in earning the required 2.4 GPA are ineligible for continuation of The Belk College.

Pre-Business students who have earned at least 60 hours are permitted to enroll in core business courses if they have met the course prerequisites and have earned at least a *C* in INFO 2130 or have passed the College Microcomputer Proficiency Test. **Students must complete all requirements and be admitted to an upper-division major to be eligible to enroll in MGMT 3280 and the upper-division business electives.**

Core Requirements. Courses that fulfill the College core and mathematics requirements for the major are ACCT 2121, 2122; BLAW 3150; ECON 1201, 1202, and 3125; FINN 3120; INFO 2130, 3130; MGMT 3140, 3160, and 3280; MKTG 3110 and OPER 3100; MATH 1100 and 1120; and STAT 1220.

Major Requirements. In addition to progression and core requirements, students majoring in Management must complete an additional 15 hours in management from one of the following three options:

Management Option

MGMT 3240 Leadership and Organizational Behavior

(Select four of the following courses)

MGMT 3241 Human Resource Management
MGMT 3243 Employment Law
MGMT 3260 Managerial Communication
MGMT 3273 New Venture Creation
MGMT 3274 International Business Processes and Problems
MGMT 3275 International Management
MGMT 3282 Business and Society

Human Resource Management Option

MGMT 3240 Leadership and Organizational Behavior
MGMT 3241 Human Resource Management
MGMT 3244 Advanced Human Resource Management

(Select two of the following courses)

MGMT 3242 Compensation Administration
MGMT 3243 Employment Law
MGMT 3245 Human Resource Management Systems
ECON 3105 Industrial Relations
FINN 3276 Employee Benefits

Note: Students electing this concentration are encouraged to select as part of their coursework outside The Belk College of Business Administration such courses offered by the Department of Psychology as PSYC 2171 (Introduction to Industrial Organizational Psychology); PSYC 3140 (Basic Processes in Psychological Assessment); PSYC 3172 (Psychology of Personnel: Employee Selection and Classification); PSYC 3173 (Psychological Bases of Training Programs); and PSYC 3670 (Seminar in Industrial Psychology).

Entrepreneurship Option (Available only during the day)
MGMT 3240 Leadership and Organizational Behavior
MGMT 3273 New Venture Creation
MGMT 3283 New Venture Experience
(Two senior-level business electives approved by the student's advisor)
Note: Participation in this concentration requires consent of the student's advisor and the Chair of the Department of Management.

Grade Point Average (GPA) Requirements. A student must have a GPA of at least 2.0 for all academic work and for the core and major requirements with no more than one *D* left standing. No course may be repeated more than twice.

Residency Requirements. All students musts satisfy the College Residency Requirements.

Cooperative Education Program. Management majors may obtain practical work experience related to their major by participating in the cooperative education program. To be eligible for cooperative education, students must be juniors who have an overall GPA of at least 2.5 and have completed the progression courses required by the Belk College of Business Administration. Transfer students must complete at least 12 hours at UNC Charlotte to be eligible for cooperative education. Completion of courses related to the co-op position may be required prior to the co-op work experience. These courses will be established by the Co-op Advisor. Students must complete either two full-time alternating semesters of work or three consecutive part-time work semesters while taking a reduced academic load of no more than nine credit hours. Experiences are arranged in coordination with the University Career Center.

SUGGESTED SCHEDULE: MANAGEMENT, HUMAN RESOURCE MANAGEMENT, ENTREPRENEURSHIP OPTIONS

Freshman Year

ENGL 1101 3
MATH 1100 3
GOAL IV 4
GOAL III 3
GOAL V: (A) 3

ENGL 1102 3
MATH 1120 3

GOAL IV 4
GOAL V: (L) 3
Elective 3

Sophomore Year

ACCT 2121 3
ECON 1201 (GOAL VI: (C)) 3
STAT 1220 3
GOAL I: (W) (Outside Major) 3
Elective 3

ACCT 2122 3
ECON 1202 (GOAL VI: (C)) 3
GOAL VI: (X) 3
INFO 2130 3
GOAL IV 4

Junior Year

MGMT 3140 3
BLAW 3150 3
MGMT 3160 (GOAL I: W) 3
OPER 3100 3
Elective 3

FINN 3120 3
INFO 3130 3
MKTG 3110 3
MGMT 3240 3
Elective 3

Senior Year

ECON 3125 3
Management Option 6
Electives 6

MGMT 3280 3
Management Option 6
Elective 3

Department of Marketing

Chairperson: Professor Swayne; *Professors*: C. Amato, Shao, Stevenson; *Associate Professor*: Bodkin; *Assistant Professors:* Conchar, Eaton; *Part-Time Lecturer:* Fox

The Department of Marketing offers a curriculum suitable for students who are (1) planning to operate their own businesses and want to know how to utilize marketing, (2) preparing for positions in small to large organizations where specialized skills in marketing are required, and (3) seeking a strong background at the undergraduate level prior to undertaking graduate work.

The study of marketing provides students with an opportunity to prepare for careers in marketing management, product management, sales, advertising and promotions management, marketing research, retailing, and international marketing.

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

Students majoring in Marketing receive a Bachelor of Science in Business Administration degree with a major in Marketing. The B.S.B.A. degree requires a minimum of 120 semester hours, including 42 hours of core courses within The Belk College of Business Administration, 18 hours in the marketing major beyond the core course, nine hours of mathematics and statistics, and completion of the University General Education requirements. In addition to the nine hours of mathematics and statistics, at least 42 hours of coursework must be taken outside The Belk College of Business Administration.

Courses that fulfill the College core and mathematics and statistics requirements are: ACCT 2121, 2122; BLAW 3150; ECON 1201, 1202 and 3125; FINN 3120; INFO 2130 and 3130; MGMT 3140, 3160 and 3280; MKTG 3110; OPER 3100; MATH 1100 and 1120; and STAT 1220.

MARKETING MAJOR

In addition to College core and mathematics and statistics requirements (51 hours) students majoring in Marketing must complete MKTG 3219 (Marketing Strategy) and an additional 15 hours from the following courses: MKTG 3210 (Marketing Research and Analysis), MKTG 3211 (Advertising and Promotions Management), MKTG 3212 (Retailing Management), MKTG 3213 (Professional Selling and Sales Management), MKTG 3214 (Internet Marketing), MKTG 3215 (Global Marketing), MKTG 3216 (Consumer Behavior), MKTG 3400 (Marketing Internship), and MKTG 3800 (Directed Study). A student must have a GPA of at least 2.0 in the above 69 hours with no more than one *D* left standing. No course may be repeated more than twice. Consult the Department of Marketing for a suggested schedule to complete the B.S.B.A. degree with a major in Marketing.

Progression Requirements. Students seeking admission to the Department of Marketing will be classified as Pre-Business students within The Belk College of Business Administration until they qualify for acceptance into an upper-division major. To be accepted as a major in Marketing and to progress into the upper-division of the College, students must have: (1) attained junior standing; (2) completed ACCT 2121 and 2122, ECON 1201 and 1202, MATH 1120, and STAT 1220 with a GPA of at least 2.4 ("Progression GPA") and a minimum grade of *C* in each course; (3) earned at least a *C* in INFO 2130 (Introduction to Business Computing) or have passed the College Microcomputer Proficiency Test, or have obtained course "Credit by Exam"; (4) have a GPA of at least 2.0 for all academic work; and (5) filed an approved "Program of Study" in the Belk College Office of Student Records.

Students may attempt each of the six courses (listed in item 2 above) two times. In the calculation of the six-course Progression GPA, only the most recent attempt is included. However all attempts are used in the calculation of overall GPA and major GPA. Students who are not successful in earning the required 2.4 GPA are ineligible for continuation of The Belk College.

Pre-Business students who have earned at least 60 hours are permitted to enroll in core business courses if they have met the course prerequisites and have earned at least a *C* in INFO 2130 or have passed the College Microcomputer

Proficiency Test. **Students must complete all requirements to be eligible to enroll in MKTG 3219, MGMT 3280, or the upper-division business electives.**

Residency Requirements: All students must satisfy the college residency requirements.

Cooperative Education Program. Marketing majors may obtain practical work experience related to their major by participating in the cooperative education program. To be eligible for cooperative Education, students must be juniors who have an overall GPA of at least 2.5 and have completed the progression courses required by The Belk College of Business Administration. Transfer students must complete at least 12 hours at UNC Charlotte to be eligible for cooperative education. Completion of courses related to the co-op position may be required prior to the co-op work experience. These courses will be established by the Co-op Advisor. Students must complete either two full-time alternating semesters of work or three consecutive part-time work semesters while taking a reduced academic load of no more than nine credit hours. The Department of Marketing coordinates the co-op experience with the University Career Center.

Internship. Because the Department is committed to experiential learning, it provides for Marketing majors to use one internship for academic credit. A proposal must be approved by the Department Chair before starting the internship. A minimum of MKTG 3110 (Marketing Concepts) with a *C* or better and an overall GPA of at least 2.0 are required. The student may not have a current or prior work history with the internship company.

INTERNATIONAL BUSINESS MAJOR

Coordinator: Alan Shao

The primary objective of the International Business major is to provide an understanding of the importance of a global perspective on the part of business managers. The major provides an integrated framework for the study of the market environment in which international business firms operate and the impact of those environments upon managerial decision making.

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

Students majoring in International Business receive a Bachelor of Science in Business Administration (B.S.B.A.) degree with a major in International Business. The B.S.B.A. degree requires a minimum of 120 semester hours, including 42 hours of core courses within The Belk College of Business Administration, nine hours of mathematics and statistics, and completion of the University General Education Requirements. In addition to the nine hours of mathematics and statistics, at least 42 hours of coursework must be taken outside The Belk College of Business Administration.

Courses which fulfill the College core and mathematics requirements are: ACCT 2121, 2122; BLAW 3150; ECON 1201, 1202, and 3125; FINN 3120; INFO 2130; 3130; MGMT 3140; 3160, 3280; MKTG 3110; OPER 3100; MATH 1100, 1120; and STAT 1220

Progression Requirements. Students seeking admission to the International Business major will be classified as Pre-Business students within The Belk College of Business Administration until they qualify for acceptance into an upper division major. To be accepted as a major in international businees and to progress into the upper division of the College, students must have: (1) attained junior standing; (2) completed ACCT 2121 and 2122, ECON 1201 and 1202, MATH 1120, and STAT 1220 with a GPA of at least 2.4 ("Progression GPA") and a minimum grade of *C* in each course; (3) earned at least a *C* in INFO 3120 (Introduction to Business Computing) or have passed the College Microcomputer Proficiency Test or have obtained course "Credit by Exam"; and (4) have a GPA of at least 2.0 for all academic work; and (5) filed an approved "Program of Study" in the College Office of Student Records.

Students may attempt each of the six courses (listed above in item 2) two times. In the calculation of the six-course Progression GPA, only the most recent attempt is included. However, all attempts are used in the calculation of overall GPA and major GPA. Students who are not successful in earning the required 2.4 GPA are ineligible for continuation in the Belk College.

Pre-Business students who have earned at least 60 hours are permitted to enroll in core business courses if they have met the course prerequisites and have earned at least a *C* in INFO 2130 or have passed the College Microcomputer Proficiency Test. **Students must complete all requirements and be admitted to an upper division major to be eligible to enroll in MGMT 3280 and the upper division business electives.**

Major Requirements. In addition to completing the College core and mathematics and statistics requirements (51 hours), students majoring in International Business must complete 15 hours of coursework in the areas related to International Business. Students must complete MGMT 3274 (International Business Processes and Problems), FINN 3223 (International Financial Management), and MKTG 3215.

College of Education

Dean: Professor Calhoun; *Associate Dean*: Associate Professor Edwards; *Director of the Office of Student Academic Services:* Tutterow; *Director of the Office of Field Experiences:* V. Jaus; *Director of the Office of Educational Outreach:* Vacant; *Director of the Teaching Fellows Program:* Cowan-Hathcock; and *Director of the Mathematics, Science and Technology Education:* Royster; *Instructional Technology Specialists:* Bateman, Hughes; *Academic Advisor:* Stickle
Website: http://www.uncc.edu/colleges/education/

Department of Counseling, Special Education, and Child Development

Chair: Professor White; *The Lake and Edward J. Snyder, Jr Distinguished Professor of Special Education:* Browder; *Professors:* Barret, Burke, Calhoun, Post, Robinson, Rowland, F. Spooner, Test; *Associate Professor*: Carroll, Cooke, Gallagher, W. Wood; *Assistant Professors*: Beattie, Furr, Jordan, Nassar-McMillan, Rhoden, Smith, Springs; *Clinical Assistant Professor:* Anderson, Baxter; *Lecturers*: Gibbs, Moore
Website: http://www.uncc.edu/colleges/education/cspc/

Department of Educational Administration, Research, and Technology

Chair: Professor Queen; *Professors:* Algozzine, Ashbaugh, Gretes, Lyons; *Associate Professors:* Bray, Flowers, Gooden, Testerman; *Assistant Professors:* Allen, Hancock, Lambert; *Lecturer:* Poole
Website: http://education.uncc.edu/eart/

Department of Middle, Secondary, and K-12 Education

Interim Chair: Associate Professor Jones; *Professors*: Brannon, Britt, Lock, Perez; *Assistant Professors:* DiBiase, Hartman, Linse, Pugalee; *Clinical Assistant Professors:* Cockman, V. Jaus; *Lecturer*: Foster
Website: http://education.uncc.edu/mdsk/

Department of Reading and Elementary Education

Chair; Associate Professor Rickelman; *Professors*: H. Jaus, Passe, K. Wood; *Associate Professors:* Audette, Edwards, Finke, Green, Nesbit, Piel, Wallace, Yon; *Assistant Professors*: Douville, Nichols, Rock, M. Spooner; *Clinical Assistant Professors*: Baucom, Chapman, Frazier; *Lecturers:* Cowan-Hathcock, Rebich
Website: http://education.uncc.edu/reel/

MISSION OF THE COLLEGE

The mission of the College of Education is to prepare excellent professionals who are knowledgeable, effective, reflective, and responsive practitioners who are leaders in their field. Activities and programs in the College of Education are designed to foster effective schooling and the development of healthy, autonomous, lifelong learners. The College strives to *identify and create knowledge* that addresses the developmental and educational needs of children, youth, and their families; and *to disseminate this knowledge* through high quality initial preparation and continuing education programs for professionals who seek to be exceptionally competent in meeting those needs.

PROGRAM RESPONSIBILITIES AND VALUES

The College of Education has these undergraduate program responsibilities:

- To develop, deliver, and evaluate high quality undergraduate programs that prepare teachers and other professional personnel for schools and related agencies.
- To operate programs that meet the standards of external governing, licensing, and accrediting agencies.
- To address the culturally diverse educational needs of its particular region.
- To initiate and support activities that enrich the global perspectives of its faculty and students.
- To respond effectively to the problems and needs of children, their families, and professionals in schools and related agencies.

The College of Education holds these programs values:

- *In fulfilling our professional roles as faculty, staff, and administrators in the College of Education,* we are committed to the generation, dissemination, and application of knowledge. We therefore expect that faculty will be teacher-scholars in their respective fields and that they will maintain a balanced commitment to teaching, research, and service. We have a strong commitment to academic excellence and exceptional quality in all we do. We are equally committed to meeting the developmental and educational needs of our own students, as well as those of children, youth, and their families in schools and related agencies. Undergirding all our professional activities is a recognition that human beings inevitably grow, develop, and learn and a commitment to maximize that growth, development, and learning for each individual.

- *In our dealings with each other, our students, and our professional colleagues in schools and related agencies,* we are committed to valuing diversity and to speaking out against oppression. We are committed to thoughtfulness, reflection, flexibility, and the exploration of new ideas. We are committed to openess, honesty, forthrightness, and the highest standards of integrity and ethical and professional behavior. We strive to be collegial, collaborative,

humane, and respectful of others, even when not in total agreement with their views or with their work, and we are committed to being sensitive to and supportive of others, including students, staff members, faculty, and our professional colleagues in the field.

CONCEPTUAL FRAMEWORK FOR TEACHER EDUCATION PROGRAMS

Website: http://education.uncc.edu/coe/NCATE/

Developing Excellent Professional Teachers at UNC Charlotte

Excellent professionals possess a comprehensive knowledge base that comprises **conceptual knowledge, pedagogical knowledge,** and **reflective knowledge. Conceptual knowledge** is knowledge about the content, domains, topics, or subjects that are taught in the student's area of licensure. **Pedagogical knowledge** is "how to teach" knowledge. Pedagogical knowledge entails knowledge of the method of teaching. **Reflective knowledge** is knowledge that enables cogent evaluation of teaching practice, including self-appraisal. **Excellent professionals** understand how to blend these types of knowledge in actuating teaching and learning in positive ways. **Excellent professionals** make connections between the knowledge base and the uses of this knowledge. Two particular uses of knowledge are emphasized within the teacher education programs at UNC Charlotte. First, UNC Charlotte teacher education students use knowledge to respond effectively to individual student needs. Secondly, they use knowledge to provide effective leadership in the profession, both in and outside the classroom. These uses of knowledge inform and advance the development of the knowledge base for teacher education. The effective interaction of the types of knowledge and these uses of knowledge result in an excellent professional.

The UNC Charlotte community charged with the preparation of teachers, including the College of Education and the College of Arts and Sciences and their respective departments, contribute to the knowledge base through course instruction and other worthy experiences. In summary, **UNC Charlotte develops excellent professionals who are knowledgeable teachers, effective practitioners, reflective teachers, leaders in the profession, and responsive teachers.**

UNDERGRADUATE PROGRAMS

The College of Education offers the following majors:

- Child and Family Development: licensure (Birth-Kindergarten) and non-licensure tracks
- Elementary Education (grades K-6)
- Middle Grades Education (grades 6-9)
- Special Education: Mental Disabilities (K-12)

In collaboration with appropriate departments in the College of Arts and Sciences, it offers professional education coursework that can lead to licensure to teach in the following areas of Secondary Education (grades 9-12):

- Biology
- Chemistry
- Comprehensive Science
- Comprehensive Social Studies
- Earth Science
- English
- History
- Mathematics
- Physics

In collaboration with appropriate departments in the College of Arts and Sciences, it offers professional education coursework that can lead to licensure to teach in the following areas of K-12 Education:

- Art
- Dance
- Music
- Theatre
- French
- German
- Spanish

All professional education programs in the College of Education are approved by the North Carolina Department of Public Instruction (NCDPI), and they have continuing accreditation from the National Council for Accreditation of Teacher Education (NCATE).

TEACHER EDUCATION POLICIES AND PROCEDURES

Admission to a Teacher Education Program. Students should apply for admission to a specific teacher education program during their sophomore year, and they must complete the admissions process before enrolling in any professional education courses at the 3000 level or higher.

Minimum requirements for admission to all teacher education programs at UNC Charlotte include:

1. An overall GPA of at least 2.5 in a minimum of 45 semester hours in University courses;
2. A grade of *C* or higher in both EDUC 2100 and SPED 2100;
3. Passing scores on the Praxis I: Academic Skills Assessments; and
4. Approval of the Chair (or his or her designee) of the Department that offers the program.

Some teacher education programs have additional requirements for admission (e.g., references, an interview, additional tests, discipline-specific coursework). Information about these additional requirements and about procedures for applying for admission to a teacher education program can be obtained in the Office of Student Academic Services in the College of Education. Students in Art, Music, Dance, or Theatre should especially check for specific admission requirements in their major department.

Retention in a Teacher Education Program. There are two minimum requirements for retention in a teacher education program:

1. A grade of *C* or higher (a) in all professional education courses *and* (b) in all courses in the student's area of teaching specialization; and

2. GPA of 2.5 or higher (a) overall, (b) in all professional education courses, *and* (c) in the student's area of teaching specialization.

Some teacher education programs have additional requirements for retention. Information about these additional requirements can be obtained in the Office of Student Academic Services in the College of Education.

Admission to Year-long Internship and Student Teaching. Most teacher education programs incorporate student teaching in a year-long internship that spans a student's senior year. The year-long internship consists of one semester of intensive clinical work in the classroom in association with regular coursework. This "clinical" semester is followed by a full semester of student teaching, usually completed in the same classroom.

Students must apply and be formally admitted to a year-long internship two semesters prior to the start of student teaching. In addition, during the first semester of their year-long internship they must apply and be formally admitted to student teaching. The minimum requirements for admission to student teaching include:

1) Senior status;
2) Completion of all other course work in a student's program of study;
3) An overall GPA of 2.50 or higher in the student's total program of study
4) Grades of *C* or higher in all professional education courses and a GPA of 2.75 or higher in those courses;
5) Grades of *C* or higher in all courses in the student's area of teaching specialization and a GPA of 2.75 or higher in those courses;
6) Prior admission to a teacher education program
7) A recommendation from the student's faculty advisor(s) certifying readiness to student teach.

Some teacher education programs have additional requirements for admission to the year-long internship and student teaching. Information about these additional requirements and about procedures and deadlines for applying for year-long internships and student teaching in all programs can be obtained in the Office of Field Experiences in Room 3050 of Colvard South at http://education.uncc.edu/ofe/

MAJOR IN CHILD AND FAMILY DEVELOPMENT: BACHELOR OF ARTS

Coordinator: Bobbie Rowland
Department: Counseling, Special Education, and Child Development (CSPC)

The Child and Family Development program leading to the B.A. degree prepares graduates to work in educational and related settings that serve infants, toddlers, preschoolers, and kindergartners who have typical and atypical needs. The licensure track prepares graduates for an entry-level ("A") license in birth-kindergarten (B-K) education. Admission to and retention in the Child and Family Development major, in either the licensure or non-licensure track, requires a GPA of at least 2.5.

Program Objectives. Graduates of the program are prepared to: apply their understanding of the various stages of growth and development of young children, the unique patterns with which children progress through these stages, and the factors that distinguish typical from atypical development; collect data on children's individual development and effectively access and utilize screening and assessment procedures for children with special needs; design, adapt, implement, and evaluate developmentally appropriate learning environments for children from birth through age eight; work collaboratively with families and with interdisciplinary teams from agencies that serve young children and their families; and demonstrate positive attitudes toward children and families and a strong commitment to continuous lifelong study of young children.

MAJOR IN CHILD AND FAMILY DEVELOPMENT WITH B-K LICENSURE:

Requirements. This major requires 124-128 semester hours as follows:

General Education (43-47 hours). Course options are listed on the program's Academic Planning Worksheet. Course selections must be approved by the student's major advisor.

Child and Family Development (24 hours)

CHFD 2111	Child Study: Interpreting Children's Behavior (3)
CHFD 2412	Practicum I: Observing and Recording Children's Behavior (2)
CHFD 2113	Infant and Early Years (3)
CHFD 2114	Foundations of Preschool Education (3)
CHFD 2115	Education of the Young Child (3)
CHFD 2416	Practicum II: The Child and the Community (2)
CHFD 3113	Parent Education (3)
CHFD 3115	Learning and Development (3)
CHFD 3412	The Family and the Community (Birth to 3 Years) (2)

Professional Education (29 hours)

EDUC 2100	An Introduction to Education and Diversity in Schools (3)
SPED 2100	Introduction to Students with Special Needs (2)

(Corequisite courses EDUC 2100 and SPED 2100 should be taken during a student's sophomore year; both must be completed with a grade of C or better to qualify for admission to the Teacher Education Program. Admission to Teacher Education and advisor's approval are required in order to register for any of the following courses.)

SPED 4110	Assessment in Special Education: Preschool (3)
SPED 4111	Issues in Preschool Education for Children with Disabilities (3)
SPED 4210	Instructional Methods and Materials: The Early Years (3)
CHFD 3410:	Student Teaching/Seminar: B-K Child and Family Development (15)

(Enrollment in CHFD 3410 requires admission to student teaching through the College's Office of Field Experiences)

Related Courses (15 hours)

EIST 4100	Computer Applications in Education (3)

SOCY – Two approved SOCY courses related to the Family Theme (6)
PSYC – Two approved PSYC courses at or above the 3000 level that relate to cognitive, social, and/or personality development (6)

Elective Courses (13 hours)
These courses must be approved by the student's advisor in Child and Family Development.

MAJOR IN CHILD AND FAMILY DEVELOPMENT (Non-Licensure Track)

Requirements. This major requires 124-128 semester hours as follows:

General Education (43-47 hours). Course options are listed on the program's Academic Planning Worksheet. Course selections must be approved by the student's major advisor.

Child and Family Development (39 hours)

CHFD 2111	Child Study: Interpreting Children's Behavior (3)
CHFD 2412	Practicum I: Observing and Recording Children's Behavior (2)
CHFD 2113	Infant and Early Years (3)
CHFD 2114	Foundations of Preschool Education (3)
CHFD 2115	Education of the Young Child (3)
CHFD 2416	Practicum II: The Child and the Community (2)
CHFD 3113	Parent Education (3)
CHFD 3115	Learning and Development (3)
CHFD 3412	The Family and the Community (Birth to 3 Years) (2)
CHFD 3416	Internship in Child and Family Development (12)
CHFD 3619	Senior Seminar in Child and Family Development (3)

(Enrollment in CHFD 3416 and CHFD 3619 requires admission to the internship through the CHFD program)

Related Courses (18 hours)

EIST 4100	Computer Applications in Education (3)

SOCY - Two approved SOCY courses related to the Family Theme (6)
PSYC – Two approved PSYC courses at or above the 3000 level that relates to cognitive, social, and/or personality development (6)

One approved course in any one or two of these areas: nursing, anthropology, creative arts, social work, or psychology (3)

Elective Courses (24 hours)
These courses must be approved by the student's advisor in Child and Family Development.

Academic Advising. Students who intend to major in Child and Family Development and to earn B-K licensure are classified as Child and Family Development majors. They are assigned a major advisor within the Child and Family Development Program, who helps them select appropriate coursework for their major.

Students who intend to major in Child and Family Development without earning B-K licensure are assigned a major advisor within the Child and Family Development Program as well.

Assignment of the student's major advisor is the responsibility of the Chair of the Department of Counseling, Special Education, and Child Development (CSPC).

MINOR IN CHILD AND FAMILY DEVELOPMENT

Students who have a GPA of 2.5 or better may elect a minor in Child and Family Development. A minor requires 18 semester hours: CHFD 2111, CHFD 2113, CHFD 2115, CHFD 3115, and six semester hours of child and family development elective courses.

MAJOR IN ELEMENTARY EDUCATION: BACHELOR OF ARTS

Coordinator: Jack Piel
Department: Reading and Elementary Education (REEL)

The B.A. program in Elementary Education qualifies graduates for an entry-level ("A") license to teach grades K-6.

Program Objectives. Graduates of the program are prepared to meet the 10 INTASC standards for new teachers in Content Pedagogy, Student Development, Diverse Learners, Multiple Instructional Strategies, Motivation and Management, Communication and Technology, Planning, Assessment, Reflective Practice, School and Community Involvement.

Requirements. The major in Elementary Education leading to the B.A. degree requires 126 semester hours as follows:

General Education (35-48 hours). Course options are listed on the program's Academic Planning Worksheet. Course selections must be initially approved by the student's Pre-Education advisor in the Office of Student Academic Services and finally approved by the student's major advisor after admission to the Teacher Education Program in Elementary Education. General Education requirements may also be met through the "Articulation Agreement" with North Carolina Community Colleges.

A Second Academic Concentration (24 hours, including two courses that also meet General Education Requirements) is required in *one* of the following six subject areas relevant to an elementary school classroom:

- English and Communications
- Mathematics
- Science
- Social Studies
- Global Studies and Foreign Language
- Visual and Performing Arts

The required and elective courses in each Second Academic Concentration are listed on the program's Academic Planning Worksheet. Course selections must be initially approved by the student's Pre-Education advisor in the Office of Student Academic Services and finally

approved by the student's major advisor after admission to the Teacher Education Program in Elementary Education. With advisor approval, a full second major in an Arts and Sciences discipline may be substituted for the academic concentration.

Related Licensure Courses (1-13 hours). Coursework is required in four areas; however, if these courses or acceptable substitutes have already been taken for General Education or Second Academic Concentration credit, no additional courses are required.

1) Practicing the Creative Arts (0-3): ARTE 2121: Development Arts, or MUSC 2191: Musicianship, or DATH 1100: Exploration of Voice and Movement: The course must be in an area of the arts different from that taken for General Education,
2) Effective Oral Communication (0-3): COMM 1101: Intro. To Speech, or THEA 1101: Intro. To Theatre (W), or COMM 2105: Small Group Communication,
3) Children's Literature (0-3): ENGL 3103: Children's Literature(L),
4) Extending Background in Science (0-3-4): A science course in a third area if only two science courses were used to satisfy General Education requirements. Not required if three lab science courses have been taken in different areas:

Professional Education Courses (57 hours)

EDUC 2100	An Introduction to Education and Diversity in Schools (3)
SPED 2100	Introduction to Students with Special Needs (2)

(Corequisite courses EDUC 2100 and SPED 2100 should be taken during a student's sophomore year; both must be completed with a grade of C or better to qualify for admission to the Teacher Education Program. Admission to Teacher Education and advisor's approval are required in order to register for any of the following courses.)

ELED 3120	The Elementary School Child (3)
ELED 3121	Measuring and Evaluating Learning in the Elementary School Curriculum (3)
MATH 2103	Fundamental Concepts in Mathematics III (3)
ELED 3122	Research and Analysis of Teaching Elementary School Learners (3)
ELED 3221	Teaching Science to Elementary School Learners (3)
HPKD 3228	Integrating Physical Activity and Movement in Elementary Schools (2)
HPKD 3229	Teaching Health and Safety to Elementary School Learners (2)
READ 3224	Teaching Reading to Primary Level Learners (3)
READ 3226	Teaching Reading to Intermediate Grade Learners (3)
ELED 3226	Teaching Language Arts to Elementary School Learners (3)
ELED 3223	Teaching Social Studies to Elementary School Learners (3)
ELED 3220	Integrating Curriculum for Elementary School Learners (4)
SPED 3290	Modifying Instruction for Learners with Diverse Needs (2)
ELED 3420	Student Teaching/Seminar: K-6 Elementary Education (15)

(Enrollment in ELED 3420 requires admission to student teaching through the College's Office of Field Experiences)

Elective (0-6 hours)
The number of free electives will vary depending upon how General Education and related licensure requirements are fulfilled.

Academic Advising. Freshmen and sophomores who intend to major in Elementary Education are classified as Pre-Education students in elementary education. They are assigned an advisor in the College's Office of Student Academic Services (OSAS), who helps them select appropriate General Education and Second Academic Concentration courses and who helps them meet the requirements for admission to teacher education. Upon admission to the Teacher Education Program in Elementary Education, which typically occurs at the end of the sophomore year, students are assigned a major advisor in elementary education, who helps them plan the remainder of their program of study. Assignment of the student's major advisor is the responsibility of the Chair of the Department of Reading and Elementary Education (REEL).

Note: Upper-division elementary education courses are available on a limited basis in the summer.

MAJOR IN MIDDLE GRADES EDUCATION: BACHELOR OF ARTS

Coordinator: Jeanneine P. Jones
Department: Middle, Secondary, and K-12 Education (MDSK)

The B.A. program in Middle Grades Education qualifies graduates for an entry-level ("A") license to teach two of the following four content areas in grades 6-9: English/Language Arts, mathematics, science, or social studies.

Program Objectives. Graduates of the program are prepared to: implement a middle grades philosophy to its fullest intent; design curriculum that is integrated, competency- and technology-based, and relevant to students' future academic and career expectations; transform their knowledge of two disciplines so that they are accessible to middle grades students; use teaching methods appropriate to the unique developmental needs of early adolescents; make informed decisions about curricular issues and instructional practices in middle grades education; demonstrate pervasive caring and innovative leadership in their work with students and colleagues; and function as lifelong learners.

Requirements. The major in Middle Grades Education leading to the B.A. degree requires 124-128 semester hours as follows:

General Education (38-42 hours). Course options are listed on the program's Academic Planning Worksheet. Course selections must be initially approved by the student's Pre-Education advisor in the Office of Student Academic Services and finally approved by the student's major advisor after admission to the Teacher Education Program in Middle Grades Education.

Second Academic Concentration (48 hours, including two courses in each Concentration that also meet General Education requirements).

Second Academic Concentrations are required in *two* of the following four subject areas relevant to a middle grades classroom:

- English Language Arts
- Mathematics
- Science
- Social Studies

The required and elective courses in each Second Academic Concentration are listed on the program's Academic Planning Worksheet. Course selections must be initially approved by the student's Pre-Education advisor in the Office of Student Academic Services and finally approved by the student's major advisor after admission to the Teacher Education Program in Middle Grades Education.

Professional Education (47 hours)

EDUC 2100	An Introduction to Education and Diversity in Schools (3)
SPED 2100	Introduction to Students with Special Needs (2)

(Corequisite courses EDUC 2100 and SPED 2100 should be taken during a student's sophomore year; both must be completed with a grade of C or better to qualify for admission to the Teacher Education Program in Middle Grades Education. Admission to Teacher Education and advisor's approval are required in order to register for any of the following courses)

MDLG 3130	The Early Adolescent Learner (4)
MDSK 3150	Research and Analysis of Teaching Middle and Secondary School Learners (3)
HPKD 3152	Health and Safety Issues in Middle and Secondary Schools (2)
MDSK 3151	Instructional Design and the Use of Technology with Middle and Secondary School Learners (3)
MDLG 3131	The Philosophy and Curriculum of Middle Grades Education (4)
READ 3255	Integrating Reading and Writing Across Content Areas (W) (3)
MDSK 3251	Teaching Science to Middle and Secondary School Learners (3) **and/or**
MAED 3232	Teaching Mathematics to Middle School Learners (3) **and/or**
MDSK 3253	Teaching Social Studies to Middle and Secondary School Learners (3) **and/or**
ENGL 4254	Teaching English/Communication Skills to Middle and Secondary School Learners (3)
SPED 3290	Modifying Instruction for Learners with Diverse Needs (2)
MDLG 3430	Student Teaching/Seminar: 6-9 Middle Grades (15)

(Enrollment in MDLG 3430 requires admission to student teaching through the College's Office of Field Experiences)

Elective (3 hours)
This course must be approved by the student's advisor in Middle Grades Education.

Academic Advising. Freshmen and sophomores who intend to major in Middle Grades Education are classified as Pre-Education students in Middle Grades Education. They are assigned an advisor in the College's Office of Student Academic Services (OSAS), who helps them select appropriate General Education and Second Academic Concentration courses and who helps them meet the requirements for admission to teacher education. Upon admission to the Teacher Education Program in Middle Grades Education, which typically occurs at the end of the sophomore year, students are assigned a major advisor in Middle Grades Education, who helps them plan the remainder of their program of studies. Assignment of the student's major advisor is the responsibility of the Chair of the Department of Middle, Secondary, and K-12 Education (MDSK).

MAJOR IN SPECIAL EDUCATION: BACHELOR OF ARTS

Coordinator: Nancy Cooke
Department: Counseling, Special Education, and Child Development (CSPC)

The B.A. program in Special Education: Mental Disabilities qualifies graduates for an entry-level ("A") license to teach children with mental disabilities in grades K-12. Enrollment in the program is limited to 25 students each year.

Program Objectives. Graduates of the program are prepared to: provide individually planned, systematically implemented, and carefully evaluated instruction for students with mental disabilities; provide educational services to students with mental disabilities in general classrooms, resource classrooms, and separate settings; and help students with mental disabilities achieve the greatest possible personal self-sufficiency and success in present and future environments. Graduates of the program are prepared to meet the 10 INTASC Standards for new teachers in Content Pedagogy, Student Development, Diverse Learners, Multiple Instructional Strategies, Motivation and Management, Communication and Technology, Planning, Assessment, Reflective Practice, and School and Community Involvement.

Requirements. The major in Special Education: Mental Disabilities leading to the B.A. degree requires 128 semester hours as follows:

General Education (45 hours). Course options are listed on the program's Academic Planning Worksheet. Course selections must be initially approved by the student's Pre-Education advisor in the Office of Student Academic Services and finally approved by the student's major

advisor after admission to the Teacher Education Program in Special Education: Mental Disabilities. General Education requirements may also be met through the "Articulation Agreement" with North Carolina Community Colleges.

Second Academic Concentration (24 hours, including two courses that also meet General Education requirements).

A Second Academic Concentration is required in *one* of the following six subject areas relevant to teaching children with mental disabilities in an elementary, middle, or secondary school classroom:

- English and Communications
- Mathematics
- Science
- Social Studies
- Global Studies and Foreign Language
- Visual and Performing Arts

The required and elective courses in each Second Academic Concentration are listed on the program's Academic Planning Worksheet. Course selections must be initially approved by the student's Pre-Education advisor in the Office of Student Academic Services and finally approved by the student's major advisor after admission to the Teacher Education Program in Special Education: Mental Disabilities. With advisor approval, a full second major in an Arts and Sciences discipline may be substituted for the academic concentration.

Professional Education (62 hours)

EDUC 2100	An Introduction to Education and Diversity in Schools (3)
SPED 2100	Introduction to Students with Special Needs (2)

(Corequisite courses EDUC 2100 and SPED 2100 should be taken during a student's sophomore year; both must be completed with a grade of C or better to qualify for admission to the Teacher Education Program in Special Education: Mental Disabilities.) Admission to Teacher Education and advisor's approval are required in order to register for any of the following courses.)

CHFD 3115	Learning and Development (3) **or**
MDSK 3160	Learning and Development: Birth through Adolescence (3) **or**
PSYC 2120	Child Psychology (3) **or**
PSYC 2121	Adolescent Psychology (3)
SPED 3171	The Education of Learners with Mental Disabilities (3)
SPED 3172	Directed Readings in Special Education Research (3)
SPED 3173	Special Education Assessment (3)
READ 3226	Teaching Reading to Intermediate Grade Learners (W) (3)
SPED 3174	Classroom-Based Assessment (3)
SPED 4276	Teaching Language Arts to Learners with Mental Disabilities (3)
SPED 4270	Classroom Management (3)
HPKD 3229	Teaching Health and Safety to Elementary School Learners (2) **or**
HPKD 3152	Health and Safety Issues in Middle and Secondary Schools (2)
HPKD 3228	Integrating Physical Activity and Movement in Elementary Schools (2)
SPED 3290	Modifying Instruction for Learners with Diverse Needs (2)
SPED 4272	Teaching Mathematics to Learners with Special Needs (3)
SPED 3273	Life Skills Instruction (3)
SPED 4170	Special Education Consultation and Collaboration (3)
EIST 4100	Computer Applications in Education (3)
SPED 3470	Student Teaching/Seminar: K-12 Special Education: Mental Disabilities (15)

(Enrollment in SPED 3470 requires admission to student teaching through the College's Office of Field Experiences)

Elective (3 hours)
This course must be approved by the student's advisor in Special Education.

Academic Advising. Freshmen and sophomores who intend to major in Special Education: Mental Disabilities are classified as Pre-Education students in Special Education. They are assigned an advisor in the College's Office of Student Academic Services (OSAS), who helps them select appropriate General Education and Second Academic Concentration courses and who helps them meet the requirements for admission to teacher education. To be admitted to the Teacher Education Program in Special Education, students must have completed an application by February 15th, attained a *C* or better in EDUC 2100 and SPED 2100, passed all three parts of the Praxis I test, and attained an overall GPA of at least 2.5 in at least 45 semester hours of coursework. Applications are available from and are to be returned to OSAS. Upon admission to the Teacher Education Program in Special Education: Mental Disabilities, which typically occurs at the end of the sophomore year, students are assigned a major advisor in special education, who helps them plan the remainder of their program of study. Course selections for each subsequent semester must be approved by the student's advisor in special education. Assignment of the student's major advisor is the responsibility of the undergraduate coordinator of the Department of Counseling, Special Education, and Child Development (CSPC).

LICENSURE IN K-12 EDUCATION IN FOREIGN LANGUAGES AND IN THE FINE AND PERFORMING ARTS

The Department of Middle, Secondary, and K-12 Education (MDSK) in the College of Education assists Departments in the College of Arts and Sciences to serve students interested in K-12 licensure for teaching French, German, Spanish, Art, Dance, Music, or Theatre Arts. With the assistance of their major advisor, students apply to the Teacher Education Program through the Office of Student Academic Services in the College of Education and through their department. Interested students are also encouraged to visit the Office of Student Academic Services at any time before applying to teacher education.

LICENSURE IN SECONDARY EDUCATION: BACHELOR OF ARTS OR BACHELOR OF SCIENCE

Coordinator: Jeanneine P. Jones
Departments: An appropriate academic department in the College of Arts and Sciences in collaboration with the Department of Middle, Secondary, and K-12 Education (MDSK) in the College of Education

The undergraduate program in Secondary Education qualifies graduates for an entry-level ("A") license to teach in one of the following subject areas in grades 9-12: English, History, Comprehensive Social Studies, Mathematics, Biology, Chemistry, Earth Sciences, Physics, or Comprehensive Science. Students major in an appropriate arts and sciences discipline and also complete a sequence of courses (including student teaching) in secondary education. The Comprehensive Social Studies license builds on a major in History; the Comprehensive Science license builds on a major in Earth Sciences.

Program Objectives. Graduates of the secondary education program are prepared to: design a curriculum that is integrated, competency- and technology-based, and relevant to students' future academic and career expectations; transform their knowledge of a discipline so that it is accessible to high school students; use teaching methods appropriate to the unique developmental needs of adolescents; make informed decisions about curricular issues and instructional practices in secondary education; demonstrate pervasive caring and innovative leadership in their work with students and colleagues; and function as lifelong learners, especially in their discipline.

Degree Requirements. The undergraduate program in secondary education requires a major in the College of Arts and Sciences in a discipline relevant to the curriculum in grades 9-12 and a maximum of 128 hours as follows:

General Education (26-41 hours). These course requirements vary with a student's academic major in Arts and Sciences and are defined by faculty in each major.

Core and Related Courses in an Appropriate Arts and Sciences Major (30-78 hours). Academic majors relevant to secondary education include English, History, Mathematics, Biology, Chemistry, Earth Sciences, and Physics. The requirements for each major are defined by faculty in that major.

Secondary Education (44 hours)

EDUC 2100	An Introduction to Education and Diversity in Schools (3)
SPED 2100	Introduction to Students with Special Needs (2)
SECD 2140	The Adolescent Learner (3)

(Corequisite courses EDUC 2100 and SPED 2100 should be taken during a student's sophomore year; both must be completed with a grade of C or better for the student to qualify for admission to the Teacher Education Program in the selected field of secondary education. Admission to Teacher Education and advisor's approval are required in order to register for any of the following courses.)

SECD 3141	Secondary Schools (3)
MDSK 3150	Research and Analysis of Teaching Middle and Secondary School Learners (3)
MDSK 3151	Instructional Design and the Use of Technology with Middle and Secondary School Learners (3)
HPKD 3152	Health and Safety Issues in Middle and Secondary Schools (2)
SECD 3142	Issues in Secondary Education (2)
READ 3255	Integrating Reading and Writing Across Content Areas (W) (3)
SPED 3290	Modifying Instruction for Learners with Diverse Needs (2)
MDSK 3251	Teaching Science to Middle and Secondary School Learners (3) **or**
MAED 3252	Teaching Mathematics to Secondary School Learners (3) **or**
MDSK 3253	Teaching Social Studies to Middle and Secondary School Learners (3) **or**
ENGL 4254	Teaching English/Communication Skills to Middle and Secondary School Learners (3)
SECD 3441	Student Teaching/Seminar: 9-12 Secondary Science (15) **or**
SECD 3442	Student Teaching Seminar: 9-12 Secondary Mathematics (15) **or**
SECD 3443	Student Teaching/Seminar: 9-12 Secondary Social Studies (15) **or**
SECD 3444	Student Teaching/Seminar: 9-12 Secondary English (15)

(Enrollment in any one of these four student teaching courses requires admission to student teaching through the College's Office of Field Experiences)

Elective Courses
These courses must be approved by the student's advisor in his or her arts and sciences major.

Academic Advising. With the assistance of their major advisor in Arts and Sciences, students intending to seek a teaching license in an area of secondary education (gr. 9-12) apply to the Teacher Education Program through the Office of Student Academic Services in the College of Education. Interested students are encouraged to visit the Office of Student Academic Services at any time before applying to teacher education. Upon admission to the Teacher Education Program, which typically occurs at the end of the sophomore year, students are assigned a second advisor in the Department of Middle, Secondary, and K-12 Education. This advisor has particular responsibility for professional education coursework. Assignment of the student's secondary education advisor is the responsibility of the Chair of the Department of Middle, Secondary, and K-12 Education (MDSK).

SUPPORT OFFICES AND SPECIAL RESOURCES

The Office of Student Academic Services (OSAS). (http://education.uncc.edu/osas/)

Located in Room 3022 of Colvard South, this office serves all students involved in Teacher Education programs. The staff, including a director and two full-time academic advisors, is responsible for:

- Promotion of teacher education programs and recruitment of students during the two years prior to their admission to UNC Charlotte
- Orientation and academic advisement of Pre-Education students prior to their admission to a specific Teacher Education Program (which typically occurs late in their sophomore year)
- Collaboration with Arts and Sciences departments concerning admission to Teacher Education Programs when those departments have teacher education tracks or degrees
- Academic support services for both students and their faculty advisors as students admitted to a teacher education program progress through their programs, complete student teaching, and apply for licensure
- Follow-up contacts with graduates for purposes of both program and product evaluation.

In collaboration with academic departments involved in teacher education, the Office of Student Academic Services is the College of Education's central source of: information about academic program requirements; criteria and procedures for admission to a specific teacher education program; student advising before admission to teacher education; schedules and applications for taking Praxis I and Praxis II examinations; requirements and procedures for obtaining licensure in North Carolina (or in other states that have reciprocity agreements with North Carolina), including the state's new licensure requirements for demonstration of advanced technology competencies; and final audits to ensure completion of all program and licensure requirements.

The Office of Field Experiences (OFE).
(http://education.uncc.edu/ofe/)

Located in Room 3050 of Colvard South, this office provides support services for school-based clinical experiences that students complete for courses and during year-long internships and student teaching. Field experiences -- observing, interacting with, and teaching children -- are a critical part of all undergraduate teacher education programs at UNC Charlotte. Early clinical experiences are linked to specific courses, designed by the instructors of those courses, and described in course syllabi. These field experiences continue throughout a candidate student's program, progressing from observation and analysis to planning and implementing instruction with PK-12 students. They culminate in a 15-week, full-time student teaching experience that occurs after completion of all other course work.

Special Facilities and Resources. The following special facilities and resources support the work of both faculty and students in teacher education programs:

- *Two model classrooms*, Rooms 5090 and 5091 in Colvard North, one for science and mathematics and the other for reading, language arts, and social studies
- An *instructional technology classroom* in Room 3120 of Colvard South
- An *open instructional technology laboratory* in Room 3140 of Colvard South
- An *interactive videotaping laboratory* in Room 3057 of Colvard South for one-on-one and small group assessment and instruction
- The Atkins Library supports teacher education programs through a large children's literature collection on the 3rd floor, curriculum and instructional materials on the 2nd floor (http://libweb.uncc.edu/cimc/); hotlinks from Jasmine, the online catalog, to curricular support materials such as Primary Search in EBSCO host which provides full text for over 50 children's magazines (http://libweb.uncc.edu/library/catalogs.htm)
- *Media Services* in Atkins Library, maintains an extensive collection of audiovisual equipment and provides graphic and television production services to support instruction
- The *Center for Math, Science, and Technology Education* in Room 5043 of Colvard North sponsors a wide variety of programs and projects that involve preservice and inservice teachers and that are designed to enhance the quality of instruction in mathematics and science for both pre-college and university students http://www.msec.uncc.edu/
- The *Office of Educational Outreach,* in the College of Education, fosters collaborative relationships between schools and UNC Charlotte by developing, supporting, and publicizing activities and projects that involve UNC Charlotte students and faculty in public school systems throughout the University's service region

The NC Teaching Fellows Program. Each year, the North Carolina Teaching Fellows Program provides a $6,500-per-year scholarship to 400 outstanding North Carolina high school seniors who commit to enroll in a teacher education program and who agree to teach in the state's public schools for a minimum of four years after graduation.

The NC Teaching Fellows Program in the College of Education, with an office in Room 3026 of Colvard South, enrolls approximately 100 students and emphasizes scholastic achievement, professional and leadership development, community service, early and continuous field experiences, and personal attention. The Director of Teaching Fellows and faculty mentors work with students throughout their four years in the program. In addition to their regular course work, Teaching Fellows participate in an on-going seminar and in special activities (retreats, cultural events, clinical experiences, summer teaching internships, etc.) that are designed to help them develop multicultural awareness, interpersonal skills, and leadership abilities.

Applications for the Teaching Fellows Program must be completed in the fall of a student's senior year in high school. Information can be obtained from high school counselors, the North Carolina Teaching Fellows

Commission at http://www.teachingfellows.org/, the director of UNC Charlotte's Teaching Fellows Program at http://www.uncc.edu/tfellows/, or staff in the College of Education's Office of Student Academic Services at http://education.uncc.edu/osas/

Undergraduate Student Organizations and Awards. Examples of organizations that are especially relevant to undergraduate students in teacher education programs include:

- The *Student National Education Association (SNEA)*, affiliated with the North Carolina Association of Educators (NCAE) and the National Education Association (NEA)
- The *Student Council for Exceptional Children (SCEC)*, affiliated with the Council for Exceptional Children (CEC)
- The *Society of Child and Family Development Professionals* offers support for all those with a Child and Family Development major or minor
- The *Omicron Pi Chapter of Kappa Delta Pi*, an international honor society for students in education

Examples of awards and scholarships that recognize the achievements of undergraduate students in teacher education programs include:

- *The Teacher Education Award*, presented annually to two seniors who have demonstrated leadership and scholarship and who plan to teach
- *The Phi Kappa Phi Scholar Award*, presented annually to a junior majoring in a program in the College of Education who demonstrates outstanding leadership in an academic discipline and in research or independent study
- *The Francis M. Fitzgerald Award*, presented annually by the National Conference of Christians and Jews to two seniors who demonstrate superior understanding of and cooperation with their fellow human beings and who plan to teach
- *The Military Order of the Purple Heart Award*, presented annually by the American Association of Colleges for Education to two juniors majoring in programs in the College of Education who have shown scholarly achievement, teaching ability, and concern for the educational rights of children with disabilities
- *The North Carolina Alpha Chapter of Alpha Delta Kappa Memorial Scholarship*, awarded annually to a student who has been admitted to a teacher education program and demonstrated both outstanding academic performance and a commitment to teaching
- *The Alma and Sharon Goudes Educational Scholarship*, presented annually to highly capable men and women who have demonstrated their intention to teach English and/or mathematics at the pre-college level
- *The Bertha and Irvin Fishman Award*, presented annually to individuals planning to teach at the middle school level.

More information about these organizations and awards for undergraduate students in teacher education is available at http://www.uncc.edu/cone/clubs/, http://education.uncc.edu/osas/finaidt.html, and in the Office of Student Academic Services (Room 3022 in Colvard South).

The William States Lee College of Engineering

Dean: Professor Johnson; *Associate Dean*: Professor Leamy; *Assistant Deans*: Tolley, Price

The William States Lee College of Engineering offers baccalaureate degree programs in Engineering and Engineering Technology. On the graduate level, the College offers programs leading to master's degrees in Engineering; the Ph.D. in electrical engineering and mechanical engineering; and, in cooperation with North Carolina State University, a program leading to the Ph.D. degree in Civil Engineering. *(See the Graduate Catalog)*

The College comprises the Departments of Civil Engineering, Electrical and Computer Engineering, Mechanical Engineering and Engineering Science, and Engineering Technology.

The engineering programs offer professional engineering education to prepare students for careers as engineers and researchers. The engineering technology programs are designed to provide graduates of two-year associate degree engineering technology programs an opportunity to continue their education at the baccalaureate level and to pursue careers as engineering technologists.

Engineering Programs. The baccalaureate programs in engineering offer a professional engineering education that can be used as the foundation for several different career objectives: careers as professional engineers in industry, business, or consulting; graduate study to prepare for careers in research, development, or teaching; and a more general and more liberal engineering education with the objective of keeping a variety of career avenues open.

Whatever the career objective of the student, a sound engineering educational program ensures their graduates have: (a) an ability to apply knowledge of math, science and engineering, (b) an ability to design and conduct experiments/analyze and interpret data, (c) an ability to design a system, component, or process, (d) an ability to function on multi-disciplinary teams, (e) an ability to identify, formulate, and solve engineering problems, (f) an understanding of professional and ethical responsibility, (g) an ability to communicate effectively, (h) an ability to evaluate the impact of technology in a global/societal context, (i) an appreciation for lifelong learning, (j) knowledge of contemporary issues, and (k) an ability to use the techniques, skills, and modern tools for engineering practice. The course of study will involve the humanities, social sciences, physical sciences, mathematics, and engineering sciences. The student expecting to accept employment in industry may emphasize the engineering design and engineering science aspects of his or her program, while the student preparing for graduate study might emphasize the mathematics and science aspects. Some engineering graduates ultimately take on executive and management responsibilities in industries and firms that are based upon engineering products and engineering services. Such students may choose to construct an elective option in their program that includes business administration and economics offerings and other courses to strengthen their communication skills.

Engineering students are strongly encouraged to pursue the requirements for registration as a Professional Engineer. The first step in the registration process is the successful completion of the Fundamentals of Engineering Exam (previously known as the EIT, Engineer-in-Training Exam). Students are encouraged to take this exam during their senior year. Additional requirements for professional licensure subsequent to graduation include the accumulation of at least four years of progressive engineering experience and successful completion of the Principles and Practice Exam.

Engineering Technology Program. Engineering technology is the profession in which a knowledge of mathematics and natural sciences gained by higher education, experience, and practice is devoted primarily to the implementation and extension of existing technology for the benefit of humanity. Engineering technology education focuses primarily on the applied aspects of science and engineering aimed at preparing graduates for practice in that portion of the technological spectrum closest to the product improvement, manufacturing, and engineering operational functions.

Engineering technology programs are characterized by their focus on application and practice and by their approximately 50/50 mix of theory and laboratory experience.

Graduates of the engineering technology program are recruited by most major technological companies in the U.S. They are employed across the technological spectrum but are better suited to areas that deal with application, implementation, and production as opposed to the conceptual design and research functions. The technical sales and customer services fields also account for many placements.

ACADEMIC PROGRESSION REQUIREMENTS AND DISCONTINUANCE CONDITIONS FOR:

Bachelor's Degree Programs in Engineering

These requirements apply to all engineering majors at UNC Charlotte. There are three engineering departments: Civil Engineering, Electrical and Computer Engineering, and Mechanical Engineering and Engineering Science. Students may also be admitted as ENGR (*engineering undecided)* or FEGR (*freshman engineering)* majors.

Freshman Engineering is essentially an individualized freshman advising program for students who meet the requirements for conditional admission to a baccalaureate degree program in an engineering major but who are not admitted directly to one of the programs. Freshman Engineering students may be admitted to a Department after completing the freshman year of study and meeting these requirements listed in I.1 and I.2.

I. Although the course requirements are not identical for the freshman and sophomore years in all three major programs, the academic requirements are the same for all majors (including freshman and undecided majors):

1. Maintain a GPA of at least 2.0 in all courses taken (overall), and, for all courses taught by the College of Engineering.
2. Achieve a grade of *C* or better in CHEM 1251, MATH 1241, 1242, PHYS 2101, ENGR 1201 and 1202. (Exception in CHEM 1251 for ECE majors.)
3. In the freshman and sophomore curriculum, retake a total of no more than three courses in mathematics, physics, and engineering.
4. In no case may a course be taken for a grade more than two times without the College of Engineering Dean's approval.
5. Prior to completing all required chemistry, mathematics, physics, and engineering courses in the freshman and sophomore curriculum, a student may take no more than 12 credit hours of junior and senior level courses, and these 12 credit hours can only be taken with the advisor's approval.
6. In the junior and senior curriculum, retake a total of no more than three courses taught by the College of Engineering. In no case may a single course be retaken more than once (i.e., taken for a grade more than two times) without the College of Engineering Dean's approval.

II. Discontinuance: A student who is deemed to be making unsatisfactory academic progress will be subject to discontinuance from the bachelor's degree program.

The conditions under which students will be subject to discontinuance are:

1. Failure to satisfy academic requirements (see above).
2. Having to take any one course in the program for a third time.
3. Receiving two *F's* in any one course in the program.
4. Compiling a grade point deficit of 14 or more in engineering courses. (See Grading Policies.)
5. Two successive semesters with a cumulative GPA of less than 2.0 in courses taught by the College of Engineering.
6. Failing to take mostly courses that lead to the engineering degree sought for two consecutive semesters (must be making reasonable progress toward the major degree).

The procedure for appeal of any discontinuance decision follows the standard policies of the departments of The William States Lee College of Engineering. See the section of this catalog on *Academic Policies and Degree Requirements* for the regulations and procedures pertaining to readmission.

SPECIAL COLLEGE PROGRAMS

Cooperative Education Program. Students in The William States Lee College of Engineering may obtain practical work experience while pursuing their degree by participating in cooperative education whereby a student alternates semesters of full-time academic study with semesters of full-time work experience in industry. The work experience is under the direction of the student's major department and is closely related to his or her field of study. Civil engineering, computer engineering, electrical engineering, and mechanical engineering students who complete the Co-op program may receive partial credit toward the experience requirement for registration as a Professional Engineer.

To be eligible for the Co-op program, an engineering student must have completed at least 24 credit hours at UNC Charlotte including a number of specified courses with a minimum GPA of 2.5. A transfer student is expected to have completed at least 12 hours at UNC Charlotte. An engineering technology student must have earned an Associate of Applied Science degree with a GPA of 2.5 or better (out of 4.0) and completed at least 12 hours at UNC Charlotte.

For an undergraduate to be officially designated as a Co-op student, he or she must participate in at least three semesters of work experience. Consequently, participation in Co-op Education usually means that the student will take five years to complete the engineering program or three years (at UNC Charlotte) to complete the engineering technology program.

Students interested in learning more about the advantages and opportunities of participating in this program should contact the College's Faculty Associate for Experiential Learning or the University Career Center.

Domestic Internships. A number of opportunities for internships exist for students in the College. These internships may be with or without pay and with or without academic credit. Students interested in learning more about these opportunities should consult with their advisor, the College's Faculty Associate for Experiential Learning, and/or the University Career Center.

International Internships. The College's International Exchange program provides for overseas study, research, and/or an industrial experience. In many cases, students who meet eligibility requirements receive special scholarships and/or grants to help defray the cost of these programs.

MAPS- Maximizing Academic and Professional Services. The College's peer mentoring program assists students in developing the personal, academic, and professional skills needed for success. The program includes peer-to-peer mentoring in individual or small group sessions, supplemental instruction, tutoring workshops and study groups for several engineering and engineering technology courses.

CONTINUING ENGINEERING STUDIES

The William States Lee College of Engineering sponsors various special educational programs for practicing engineers, technologists, technicians, and others in addition to its regular academic degree programs and courses. These include conferences, short courses, seminars, and other continuing education programs designed to aid those practicing in the technical professions and occupations to keep abreast of the latest

developments in the rapidly expanding technology. For more information, contact the Office of Continuing Education, Extension, and Summer Programs.

Department of Civil Engineering

Chairperson: Associate Professor Young; *Professor Emeritus*: Evett; *Duke Energy Distinguished Professor*: Inyang; *Professors*: Bayer, Janardhanam, King, Wu; *Associate Professor*: Graham, Kane; *Assistant Professors:* Gergely, Hilger, Stadler

The program in Civil Engineering is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, *Baltimore*, MD 21202, Telephone: (410) 347-7700.

The objective of the undergraduate program in Civil Engineering are to: (a) provide students with the latest social, mathematical, scientific and engineering educational experiences required to access needs, define problems, evaluate alternatives, propose appropriate solutions and implement designs; (b) provide students with the social science and management educational experiences required to effectively work in teams, communicate recommendations and manage the implementation of their designs; and (c) promote concern for environmental, societal and global ramifications of engineering solutions, the value of the profession and its ethics, the opportunities provided by graduate studies, and the necessity of life-long learning. These objectives are accomplished through a flexible curriculum and opportunities for interactions with other departments and colleges of the University.

A major role of civil engineers is to focus scientific and technological skills on the creation of physical facilities, engineering and construction of which advance society toward such basic goals as economic development, environmental protection, and social well-being. Civil engineers may be involved in design and construction of buildings, bridges, dams, and other structures; in development of water resources for urban use, industry and land reclamation; in transmission of water and control of rivers; in control of water quality through purification and proper waste treatment; in transportation systems including highways, mass transit, airports, railroads, pipelines, canals, and harbor facilities; in problems associated with the environment including air pollution, noise pollution, ecological effects, land development, and urban and regional planning; and in a wide range of services--all involving health, safety, and welfare of the public. Civil engineers must bring about a satisfactory blending of constructed facilities with the natural and social environments, creating an optimum relationship between humans and the environment.

The Department offers a Bachelor of Science in Civil Engineering (B.S.C.E.) degree and administers a program leading to a Master of Science in Civil Engineering (M.S.C.E.) degree and a Master of Science in Engineering (M.S.E.) degree. Doctoral studies leading to the Doctor of Philosophy (Ph.D.) degree are available through a cooperative arrangement with North Carolina State University. For information about the master's programs, see the *Graduate Catalog*.

Students may plan early in their undergraduate careers for continuation of their engineering studies beyond the first degree. The large number of fields of graduate study that can logically follow the curriculum offered by the Department of Civil Engineering may influence how each student plans a program of study. Twenty One hours of technical electives allow flexibility for study in specific areas, and each student may design a technical elective program with his or her advisor's advice and approval in order to achieve an individual goal and follow a desired track.

Additionally, students may take nine hours (three "Optional Courses") beyond the BSCE requirements from prescribed menus in each of the areas of Environmental, Geotechnical, Structural, and Transportation Engineering to earn a Department-issued "Area of Concentration." Qualified students may apply for early-entry into the graduate program in Civil Engineering during their junior or senior year and, if accepted, may take these optional courses for graduate credit and may begin work on their master's degree while completing their undergraduate degree.

Early-entry to Master's Program in Civil Engineering

1. A student may be accepted into the program at any time after completion of at least 75 semester hours of undergraduate work applicable to an appropriate degree. Admission must be approved by the Department of Civil Engineering. The admission is conditional pending the awarding of the undergraduate degree.

2. In order to be accepted into the program a student must have at least a 3.2 overall grade point average and a 3.2 grade point average in the student's major. The successful applicant must have taken the appropriate standardized test and earned acceptable scores.

3. The student must maintain a 3.0 overall grade point average through completion of the baccalaureate degree in order to remain in the graduate program.

4. Students accepted into the early-entry program will be subject to the same policies that pertain to other matriculated graduate students. Early-entry students must finish their undergraduate degree before they complete 15 hours of graduate work.

The program in Civil Engineering is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

BACHELOR OF SCIENCE IN CIVIL ENGINEERING (B.S.C.E.)

This curriculum became effective Fall 2000. Students entering the program prior to Fall 2000 should refer to a previous catalog or contact the Department office for their program of study. Other students should contact the

Department office for the latest information concerning this curriculum.

A major in Civil Engineering leading to the B.S.C.E. degree consists of 120 credit hours. Specific requirements are:

English	6
Technical Communications	3
Humanities and Social Science Electives	12
Mathematics	15
Physics	8
Chemistry	4
Science Elective	3
Engineering	4
Electrical or Mechanical Engineering	3
Engineering Science	6
Departmental Requirements	35
Technical Electives	21
	120

Social science and humanities electives must be chosen both to satisfy Goals III, V(A and L) and VI(C and X) of University General Education requirements and to meet the objectives of a broad education consistent with the educational goals of the profession. To avoid taking an "extra" elective, students must select one elective to satisfy two goals (Goal III plus another).

The science electives must be chosen from an approved list of physical, life, or earth sciences and must complement the student's overall educational plan.

Technical electives allow flexibility for study in specific areas, and each student may design a technical elective program with the advisor's advice and approval in order to achieve an individual goal and follow a desired track. Technical (TECH) electives may be selected from the areas of engineering, mathematics, science, business and communications. Civil Engineering technical (CEGR TECH) electives must be selected from upper-division Civil Engineering courses.

CURRICULUM OUTLINE: B.S.C.E. DEGREE
(effective Fall 2000)

Freshman Year

MATH	1241	Calculus I	3
CHEM	1251	Chemistry I	3
CHEM	1251L	Chemistry Lab	1
ENGL	1101	English I	3
ENGR	1201	Introduction to Engineering I	2
HUM/SS		Elective	3
			15

MATH	1242	Calculus II	3
PHYS	2101	Dynamics	3
PHYS	2101L	Physics Lab	1
ENGL	1102	English	3
ENGR	1202	Introduction to Engineering II	2
HUM/SS		Elective	3
			15

Sophomore Year

MATH	2241	Calculus III	3
PHYS	2102	Electricity	3
PHYS	2102L	Physics Lab	1
CEGR	2101	Drawing	2
CEGR	2102	Engineering Economics	3
MEGR	2141	Statics (Engr. Mech. I)	3
HUM/SS		Elective	3
			18

MATH	2171	Differential Equations	3
STAT	3128	Probability and Statistics for Engrs.	3
CEGR	2104	Surveying & Site Design	3
ENGL	2116	Technical Writing	3
MEGR	2144	Solid Mechanics	3
CEGR	2154	Design Project Lab	2
			17

Junior Year

CEGR	3143	Hydraulics & Hydrology	3
CEGR	3141	Environmental I	3
CEGR	3161	Transportation I	3
CEGR	3278	Geotechnical I	3
CEGR	3122	Structures I	3
			15

CEGR Lab	Elective	1
CEGR Lab	Elective	1
CEGR TECH	Elective	3
CEGR TECH	Elective	3
Science	Elective	3
Engineering	Elective: ECGR 2161-Circuits or MEGR 3121-Dynamics or MEGR 3111-Thermodyn.	3
Optional Course A		(3)
		14

Senior Year

CEGR 3201	Systems and Design I	3
CEGR 3282	Professional Development	1
CEGR TECH	Elective	3
HUM/SS	Elective	3
TECH	Elective	3
* Optional Course B		(3)
		13

CEGR 3202	Systems and Design II	3
CEGR Lab	Elective	1
TECH	Elective	3
TECH	Elective	3
CEGR TECH	Elective	3
* Optional Course C		(3)
		13

Total Required Hours 120

*Contact the Department office for more information about the optional courses and their use for an undergraduate concentration or for the early-entry Master's program.

Note: *Details given in the Civil Engineering course descriptions in this Catalog are subject to change. Please contact the Department for the most current information.*

Department of Electrical and Computer Engineering

Chairperson: Professor Tranjan; *Professors*: Bobbio, Colemen, Daneshvar, Kakad, Lukic, Makki, Phillips, Stroud, Tsu; *Professor Emeritus:* Greene; *Associate Professors*: Binkley, Feldman, Hasan, Miri; *Associate Professor Emeritus:* Smith; *Assistant Professors:* Emmert, Nasipuri, Weldon

The Electrical and Computer Engineering Department provides instruction and research in areas of electrical and computer engineering such as electronics, microelectronics, optoelectronics, power systems, control theory, digital systems, communications, and VLSI design.

The Department offers a **Bachelor of Science in Electrical Engineering (B.S.E.E.) degree and a Bachelor of Science in Computer Engineering (B.S.Cp.E.) degree.** An eight-semester sequence of courses that is designed to develop the concepts and design and analysis techniques fundamental to the various areas of specializations forms the core of the curricula. Emphasis is placed on the utilization of computers throughout the curricula.

The programs objectives are as follows:

- To provide our students the opportunity and the environment to acquire the educational background necessary to pursue professional careers in Electrical and Computer Engineering and/or to continue their education toward an advanced degree in the field.
- To provide our students a comprehensive background in mathematics, physical and social sciences, liberal arts, and human values, with in-depth knowledge of the fundamentals of engineering science and electrical and computer engineering.
- To provide our students a solid design background to pursue successful and long careers in the profession in areas such as microelectronics, circuits, communications, controls, power systems, solid-state devices, and computer engineering.
- To prepare our students to effectively communicate their thoughts and ideas.
- To provide our students with relevant skills in information technology, suitable for a modern career in electrical and computer engineering.

The laboratory courses are designed to: (1) teach the basic techniques of instrumentation; (2) develop skills in communications; and (3) relate the analytical methods developed in the classroom to the performance of real physical systems.

The curriculum requirements are flexible enough to enable a student to synthesize a program of study to achieve his, or her, particular objectives and degree of specialization. This is done through the use of the technical electives, with the guidance and approval of the student's academic advisor. If further specialization in a particular area is desired, the student is encouraged to seek an advanced degree.

Graduate studies in electronics, microelectronics, optoelectronics, computer engineering, VLSI design and testing, signal processing, communications, and power and control systems are offered by the Department at the master's level. The Department also offers a doctoral degree with emphasis in microelectronics, optoelectronics, or computer engineering.

Early-entry to the Master of Science Program in Electrical Engineering

1. A student may be accepted into the early-entry Program at any time after completion of 75 semester hours of undergraduate work applicable to an appropriate degree. Admission must be approved by the Department of Electrical and Computer Engineering. The admission is conditional pending the awarding of the undergraduate degree.

2. In order to be accepted into the Electrical Engineering early-entry Program, an undergraduate student must have at least a 3.2 overall grade point average and a 3.2 grade point average in the major. The successful applicant must have taken the appropriate graduate standardized test and achieved acceptable scores.

3. If an Early-Entry student is unable to maintain a 3.0 overall grade point average at the end of his/her baccalaureate degree, he/she will be dismissed from the graduate program.

4. Up to six hours earned at the graduate level may be substituted for required undergraduate hours. (Up to six hours of graduate work may be "double counted" toward both baccalaureate and graduate degrees.)

5. Students accepted into the Early-Entry program will be subject to the same policies that pertain to other matriculated graduate students. Early-Entry students must finish their undergraduate degree before they complete 15 hours of graduate work.

The program in Electrical Engineering is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202 - Telephone (410) 347-7700

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING (B.S.E.E.)

This curriculum became effective Fall 1995. Students entering the program prior to Fall 1995 should refer to a previous catalog or contact the Department office for their program of study.

A major in Electrical Engineering leading to the B.S.E.E. degree consists of a total of 126 credit hours. The degree requirements are:

English	6
Humanities and Social Science Electives	18
Mathematics	15
Physics	10
Chemistry	4

Science Elective	3
Engineering	4
Mechanical Engineering	3
Departmental Requirements	51
Technical Electives	9
Economics	3
	126

*One course in Foreign language may be considered as HUM/SS.

The social science and humanities electives must include some courses at an advanced level and be chosen to satisfy the University General Education requirements and to meet the objectives of a broad education consistent with the educational goals of the profession.

The science elective must be chosen from the physical, life, or earth sciences and must complement the student's overall educational plan.

The technical electives are chosen by students in consultation with their academic advisor. Students can use these electives to (1) obtain some breadth within electrical engineering by choosing additional advanced courses; (2) obtain significant depth within a particular area of electrical or computer engineering; and (3) prepare for graduate work in electrical or computer engineering. The technical electives must contain at least nine hours of coursework dealing with engineering science, analysis, synthesis, or design. See Department guidelines for selection of these courses.

All junior-level core courses must be satisfactorily completed prior to enrolling in the senior project courses.

CURRICULUM OUTLINE: B.S.E.E. DEGREE

Freshman Year

ENGR 1201 - Intro. To Engr. Pract. & Prin. I	2
MATH 1241 - Calculus I	3
CHEM 1251 - Principles of Chemistry	3
CHEM 1251L - Chemistry Lab	1
ENGL 1101 - English Composition	3
HUM/SS	3
	15

ENGR 1202 - Intro. To Engr. Pract. & Prin II	2
MATH 1242 - Diff & Integral (Cal II)	3
PHYS 2101 - Physics: Dynamics	3
PHYS 2101L - Physics Lab	1
ENGL 1102 - Composition & Literature	3
HUM/SS	3
	15

Sophomore Year

ECGR 2111 - Network Theory I	3
ECGR 2103 - Computer Utilization in C++	2
ECGR 2181 - System Design I	3
PHYS 2102 - Electricity & Mag	3
MATH 2191 - Differential Equations	3
ECGR 2155 - Lab: Logic & Networks	1
	15

ECGR 2112 - Network Theory II	3
PHYS 3141 - Introduction to Modern Physics	3
MATH 2241 - Calculus III	3
HUM/SS	3
ECGR 2252 - Electrical Engineering Design I	2
ECGR 2156 - Lab: Instrumentation and Networks	1
	15

Junior Year

ECGR 2111 - Signals and Systems	3
ECGR 3157 - Electrical Engineering Design II	2
ECGR 3131 - Fund of Electronics & Semiconductors	3
ECGR 3121 - Introduction to Electromagnetic Fields	3
HUM/SS	3
ECGR 3199 - Professional Development	0
ECGR 3155 - Lab: Systems and Electronics	1
	15

HUM/SS	3
ECGR 3142 - Electromagnetic Devices	3
ECGR 3132 - Electronics	3
ECGR 3122 - Electromagnetic Waves	3
STAT 2122 - Probability and Statistics	3
ECGR 3199 - Professional Development	0
ECGR 2156 - Lab: Electromagnetic and Electronic Devices	1
	16

Senior Year

ECGR 3253 - Senior Design I	2
ECGR Senior Elective	3
Technical Elective	3
Science Elective	3
Communication Theory	3
Economics	3
ECGR 3199 - Professional Development	0
	17

ECGR 3259 - Senior Design II	3
Thermodynamics	3
Technical Elective	3
Technical Elective	3
HUM/SS	3
ECGR 3159 - Elec. Engineering Professional Practice	2
	17

Total Hours 126

BACHELOR OF SCIENCE IN COMPUTER ENGINEERING (B.S.Cp.E.)

The major in Computer Engineering leading to the B.S.Cp.E. degree consists of 120 semester credit hours. The degree requirements consist of the following:

University Goals. 45 hours meeting and surpassing the University General Education requirements, including a technical writing course, nine hours of math, and 12 hours of science.

Core 1. Advanced Problem Solving: Nine hours of advanced problem solving courses chosen from a restricted list.

Core 2. Computer Engineering: 27 hours of computer engineering including: introduction to engineering, programming and data structures, network theory,

electronics, logic design, data communications, and computer organization and architecture.

Breadth. 12 hours. The students choose one course from each of four areas.

Depth. Six hours. The student chooses two additional courses from one of the chosen breadth areas; combined with the Breadth requirement, this results in a minimum of nine hours in some concentration areas.

Senior Design Capstone. Six hours of senior design project.

Restricted Electives. Six hours of engineering, math, statistics, physics, chemistry, or biology at the 2xxx level or above.

Free Electives. Nine hours.

Total: 120 semester hours

CURRICULUM OUTLINE: BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

University Goals--45 hours

I. Communication: ENGL 1101, 1102, 2116 (technical writing) 9

II. Problem Solving: MATH 1241, 1242; STAT 2122 9

III. Values: xxxx 3

IV. Science: PHYS 2101/L + any two of..... 12
(CHEM 1251/L, CHEM 1252/L,
BIOL 1110/L, BIOL 1115/L, PHYS 2102/L)

V. Arts & Literature: xxxx/xxxx..... 6

VI. Individuals & Society: xxxx/xxxx..... 6
Subtotal..... 45

Core 1. Advanced Problem Solving – Nine hours
Any two from the set:
(MATH 2164, 1165, 2171, 3116, 3166;
OPRS 3111, 3113; PHYS 3141)..... 6
Plus 3 hours in any Science or any MATH/STAT/OPRS at the 2XXX level or above 3

Core 2. Computer Engineering – 27 hours
ENGR 1201/1202 – Intro to Engr. I & II..... 4
ITCS 1214 – Intro to Computer Science..... 3
ITCS 1215 – Intro to Computer Science II..... 3
ECGR 2111 – Network Theory I..... 3
ECGR 2155 – Logic and Networks Lab..... 1
ECGR 3131 – Fund of Electronics and Semiconductors 3
ECGR 2181 – Logic System Design I..... 3
ECGR 2255 – Digital Design Lab (new course)..... 1
ECGR 3123 – Data Comm & Networking (new course) 3

ITCS 3182 – Computer Organization and Architecture 3
Core 1 & 2 Subtotal 36

Breadth: Choose one course from four different focus areas. The list is provided by the Department. The focus areas include: Design & Test, Communications, Device Electronics & Technology, and Computer Architecture
Total of Breadth:..... 12

Depth: Two ECGR courses (3XXX or above) from one of the areas chosen for breadth 6

Senior Design Capstone..... 6

Restricted Electives: 2XXX or above (Engineering, Computer Science, Math, Physics, Chemistry, or Biology) courses 6

Free Electives: 9
Total Hours.....120

EXAMPLE PLAN OF STUDY: B.S.Cp.E. DEGREE

In the following outline, "RE" refers to restricted electives, and "COE" refers to College of Engineering.

Freshman Year
ITCS 1214 - Introduction to Computer Science 3
MATH 1241 - Calculus I..... 3
ENGL 1101 - Composition..... 3
ENGR 1201 – Intro. to Engr. I 2
GOAL VI (C/X)..... 3
14

ITCS 1215 – Introduction to Computer Science II..... 3
MATH 1242 – Calculus II..... 3
ENGL 1102 – Writing in Acad Comm..... 3
ENGR 1202 – Intro to Engr II..... 2
PHYS 2101 – Phys for Science and Engr I 3
PHYS 2101 – Phys Lab I..... 1
15

Sophomore Year
Advanced Problem Solving Selection 3
ECGR 2181 – Logic System Design 3
ECGR 2155 - Logic & Networks Lab 1
ECGR 2111 – Network Theory I..... 3
Science Selection & Lab..... 4
14

Advanced Problem Solving Selection 3
3182 – Computer Organization & Architecture 3
Science Selection & Lab..... 4
Free Elective 3
RE: 2xxx or ahove COE/PHYS/CHEM 3
ECGR 2255 – Digital Design Lab 1
17

Junior Year
Free Elective..... 3
Breadth #1 (Breadth Elective) 3
Advanced Problem Solving Selection 3
RE: 2xxx or above COE/PHYS/CHEM 3
ECGR - 3131 Fund. of Elect. and Semi..... 3
15

STAT 2122 – Prob & Statistics 3
ENGL 2116 – Tech Writing 3

GOAL V (L)	3
Breadth #2 (Breadth Elective)	3
ECGR 3123 – Commun & Networking	3
	15

Senior Year

ECGR 3253 - Senior Design I	3
Breadth #3 (Breadth Elective)	3
Depth #1 (Depth Elective)	3
GOAL VI (X)	3
Breadth #4 (Breadth Elective)	3
	15

ECGR 3254 - Senior Design II	3
Depth #2 (Depth Elective)	3
Free Elective	3
GOAL III, Values	3
Goal V (A)	3
	15

Total Hours 120

Department of Engineering Technology

Chairperson: Professor Liu; *Professors:* Byars, Patten, *Professor Emeritus:* Shelnutt; *Associate Professors*: Barry, Braun, Carter, Chaffin, Janssens, Liou, Mobley, Priebe, Sherlock, S. Wang; *Associate Professor Emeritus:* Christie, P. Wang, Willis; *Assistant Professors*: Ahmad, Jones, Kimble, Ramers; *Visiting Assistant Professor*: Owen; *Adjunct Associate Professor:* van Brederode

Engineering and technical education have undergone considerable change in the last 30 years. The complexities of space exploration, nuclear power, communications systems, environmental control, information processing, transportation systems, fire protection and manufacturing have demanded a great increase in the involvement of professional engineers in theoretical and analytical work. This has resulted in a much greater emphasis upon research and development, science, and mathematics in professional engineering curricula. At the same time, after the more complex devices and systems have been engineered, the design, development, and operation require the sophisticated knowledge and skills of what might be called the "applied engineering sciences." Programs dedicated to filling this need exist all over the United States. The aim and content of these programs are distinctly different from professional engineering curricula.

To provide the appropriate distinction from both theoretical-professional engineers and from engineering technicians who are graduated from the two-year technical institutes, the designation "engineering technologist" is being used throughout the United States for the graduates of four-year applied engineering or "engineering technology" curricula.

The two-year technical institute programs in North Carolina and in many other states provide an excellent foundation for four-year baccalaureate engineering technology curricula. Therefore, the Engineering Technology program at UNC Charlotte is limited to the junior and senior years, and an Associate in Applied Science degree is required for admission.

UNC Charlotte offers five curricula leading to a Bachelor of Science in Engineering Technology (B.S.E.T.) degree: **Civil Engineering Technology** (emphases on General Civil Engineering Technology and on Construction Engineering Technology); **Electrical Engineering Technology** (emphasis on Electronics Engineering Technology and Computer Engineering Technology); **Fire Safety Engineering Technology**; **Manufacturing Engineering Technology** (emphases on General Manufacturing Engineering Technology and on Industrial Engineering Technology); and **Mechanical Engineering Technology.** UNC Charlotte is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Land, Decatur, Georgia 30033-4097: telephone number 404-679-4501) to award baccalaureate, master's, intermediate, and doctoral degrees. In addition, the Civil, Electrical and Mechanical Engineering Technology programs of study in Engineering Technology are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (111 Market Place, Suite 1050, Baltimore, MD 21202: telephone number 410-347-7700).

In addition to the on campus programs, the BSET program in Electrical Engineering Technology is also offered over the Internet to part time students. Students are required to come to the campus only for an initial orientation and for ELET laboratories. The ELET laboratories are (currently) offered on a schedule of Saturdays during the summer school sessions, but other laboratory schedules may be initiated in future offerings. Estimated completion time is four years.

Fire Safety Engineering Technology. In the fall of 1999 UNC Charlotte initiated a baccalaureate level program in Fire Safety Engineering Technology. The two-year program builds on an AAS degree in Fire Science or Fire Protection completed at a community college prior to admission to UNC Charlotte. Certain technical subjects must have been included in the AAS Program, as well as General Education courses. Since the Fall 2000 semester in addition to the on campus program, the BSET program in Fire Safety Engineering Technology is offered over the Internet to part time students.

ENGINEERING TECHNOLOGY PROGRAM GOALS

General Engineering Technology Goals – Approved by Engineering Technology Faculty, April 2000.

Goal 1. Continuously Improve student competencies

Goal 2. Increase the quality, diversity, and number of students enrolled in Engineering Technology.

Goal 3. (a) Create an ELET distance-learning curriculum that complements the on-campus program and which takes advantage of web-based technology as appropriate, and (b) develop and implement fire safety and polymer processing engineering technology programs that are unique in the state of North Carolina.

Goal 4. We earn our prestige based on our multi-disciplinary program and our interdisciplinary scholarship with support of the faculty from the College and administration.

Goal 5. Respond to local markets in fiber optics and information technology.

Civil Engineering Technology Program

1. Graduates have the TAC/ABET A->K Skills (see table below)
2. The program produces competent ET graduates to satisfy NC employers' needs
3. The program will identify, measure, and improve student competencies

Mechanical Engineering Technology Program

1. Graduates have the TAC/ABET A->K Skills (see table below)
2. The program produces competent ET graduates to satisfy NC employers' needs
3. The program will identify, measure, and improve student competencies

Electrical Engineering Technology Program

1. Graduates have the TAC/ABET A->K Skills (see table below)
2. The program produces competent ET graduates to satisfy NC employers' needs
3. The program will be provided via the Distance Learning Program(s), including the Internet

Fire Safety Engineering Technology Program

1. Graduates have the TAC/ABET A->K Skills (see table below)
2. The program produces competent ET graduates to satisfy NC employers' needs
3. The program will be provided via the Distance Learning Program

TAC/ABET A -> K Skills

ABET a: Graduates are expected to demonstrate an appropriate mastery of the knowledge, techniques, skills, and modern tools for their disciplines.
ABET b: Graduates are expected to be able to apply current knowledge and adapt to emerging applications of mathematics, science, engineering, and technology.
ABET c: Graduates will conduct, analyze, and interpret experiments and apply experimental results to improve processes.
ABET d. Graduates are expected to be able to apply creativity in the design of systems, components, or processes appropriate to program objectives
ABET e: Graduates are expected to be able to function effectively on teams.
ABET f: Graduates are expected to be able to identify, analyze, and solve technical problems.
ABET g: Graduates are expected to be able to communicate effectively.
ABET h: Graduates are expected to be able to recognize the need for and possess the ability to pursue lifelong learning.
ABET i: Graduates are expected to be able to understand professional, ethical, and social responsibilities.
ABET j: Graduates are expected to be able to recognize contemporary professional, societal, and global issues and are aware of and respect diversity.
ABET k: Graduates are expected to have a commitment to quality, timeliness, and continuous improvement.

BACHELOR OF SCIENCE IN ENGINEERING TECHNOLOGY (B.S.E.T.)

Requirements for Admission. A student who has graduated from a technical institute or the technical division of a junior college must meet the following requirements to enter the Engineering Technology program at UNC Charlotte:

1. An Associate in Applied Science degree in one of the following fields: Architectural, Automation, Building Construction, Civil, Construction, Computer, Controls, Design and Drafting, Electrical, Environmental, Fire Protection, Fire Science, Optical, Electronics, Industrial, Instrumentation, Manufacturing, Mechanical, Robotics, or Surveying Technology;

2. An overall grade point average of at least 2.2 (based on the 4.0 system) on all courses taken at the technical institute or community college; and

3. Satisfactory completion of the prerequisite background courses for the program emphasis that the student plans to enter.

There is considerable variance in the contents of technical institute programs throughout the United States. Should this result in entrance deficiencies, the student can usually remove these deficiencies at any technical institute or community college prior to admission to UNC Charlotte, or during the first year at UNC Charlotte.

Residence Requirements. A student must earn the last 30 semester hours of credit toward the degree and the last 12 semester hours of work in the major at this University to satisfy residence requirements.

Experiential Learning Requirements. All students graduating after August 1999 must complete at least one experiential course. Experiential courses are practice-oriented courses such as cooperative education, internships, senior design projects, or undergraduate research. This experience must be approved in advance, in writing, by the student's advisor.

Academic Requirements and Discontinuance Conditions for Bachelor's Degree in Engineering Technology. These requirements apply to majors in all programs leading to the B.S.E.T. Degree. These programs are Civil Engineering Technology, Electrical Engineering Technology, Fire Safety Engineering Technology, Manufacturing Engineering Technology, and Mechanical Engineering Technology.

1. A GPA of at least 2.0 must be maintained in all courses taken (overall).

2. A GPA of at least 2.0 must be maintained in all courses taken in the College of Engineering.

3. A student may not accumulate failing grades (*F*s) in more than three courses in the College of Engineering. Upon failing a fourth course in the College the student will be discontinued from study in the Department of

Engineering Technology. The student can be reinstated only under the Two-Year rule.

4. No single course may be repeated more than once without the approval of the Dean of the College of Engineering.

5. A course may not be repeated if it has been completed with a grade of *C* or higher.

6. A student who is admitted to any BSET program without meeting ALL published admission requirements is expected to remove all admission deficiencies within one year. Violators are subject to discontinuance.

7. Students not following the program of courses required by their declared B.S.E.T. Program for two successive semesters will be discontinued from study in the Department of Engineering Technology.

Course Requirements. Prerequisite courses for entering the Engineering Technology program, normally taken at a technical institute or community college, are listed on the pages that follow. Courses that must be completed at UNC Charlotte are listed in the Engineering Technology curricula that follow.

General Education Requirements. All students must satisfy the Goals of UNC Charlotte General Education to receive the B.S.E.T. degree.

Prerequisites for admission to all of the Engineering Technology Programs, except Fire Safety Engineering Technology. Students must have satisfactorily completed the following subjects in their two-year associate degree program:

English Composition, Technical Writing and/or Public Speaking *(6 semester hours)*
Algebra, Trigonometry and Analytic Geometry with Calculus *(9 semester hours)*
Differential and Integral Calculus *(3 semester hours)*
General Physics (with laboratory) *(4 semester hours)*
Physics or Chemistry (with laboratory) *(4 semester hours)*
Humanities or Social Sciences that partially satisfy UNC Charlotte General Education Goals III, V, and VI *(3 semester hours)*
Computer Programming (BASIC, FORTRAN, PASCAL, or C) *(3 semester hours)*
Technical Courses in Major Area as listed under Discipline Specific Prerequisites below *(32 semester hours)*

Prerequisites for admission to the Fire Safety Engineering Technology Program. Students must have satisfactorily completed the following subjects in their two-year associate degree program:

English Composition, Technical Writing and/or Public Speaking *(6 semester hours)*
Algebra *(3 semester hours)*
Three science courses, including at least one course from the life sciences, one course from the physical sciences, and one course with a laboratory *(10 semester hours)*; or a two-semester sequence of science courses with laboratories *(8 semester hours)*
Humanities or Social Sciences that partially satisfy UNC Charlotte General Education Goals III, V, and VI *(6 semester hours)*
Computer Literacy Course *(2 semester hours)*
Technical Courses in Major Area as listed below (33 semester hours)

Total maximum transfer credit from two-year college is 64 semester hours.

Discipline Specific Prerequisites:

Civil
Drafting
Surveying
Statics
Strength of Materials

Electrical
Electrical Drafting
D.C. Circuits
A.C. Circuits
Digital Circuits
Semiconductor Circuits
Communications Electronics, Control Systems or Micro Computers

Fire Safety
Introduction to Fire Protection (2 semester hours)
Fire Prevention and Public Education (3 semester hours)
Fire Detection and Fire Investigation (3 semester hours)
Building Construction (3 semester hours)
Inspections and Codes (3 semester hours)
Sprinklers and Automatic Alarms (3 semester hours)
Fire Protection Law (2 semester hours)
Fire Fighting Strategies (3 semester hours)
Chemistry of Hazardous Materials (5 semester hours)
Hydraulics and Water Distribution (3 semester hours)
Managing Fire Services (3 semester hours)

Mechanical
Drafting
Machine Processes
Statics
Strength of Materials
Metallurgy or Engineering Materials
Kinematics or Mechanisms
Design Drafting or Machine Design
Basic Electrical Circuits
(Or Physics II, Electricity)

Manufacturing and Industrial
Electrical Background
Electrical Drafting
D.C. Circuits
A.C. Circuits
Digital Circuits
Semiconductor Circuits
Communications Electronics or Control Systems or Microcomputers

Mechanical Background
- Basic Electrical Circuits or Physics III - Electricity
- Statics
- Strength of Materials
- Machine Processes
- Metallurgy or Engineering Materials
- Kinematics or Mechanisms
- Design Drafting or Machine Design

Computer Technology Background
- Introduction to Computers/Micros
- Electronics for Computers
- Computer Aided Design
- Industrial Computer Applications
- Process Control
- Micro Interfacing

Laser, Electro-Optics Background
- Basic Optics
- Digital/Analog Circuits
- Electronic Measurements or Instrumentation
- Control Systems or Communications or Computer Interfacing
- Others from:
  - Laser Optics
  - Materials
  - Industrial Optics
  - Signal Processing or
  - Technical Electives

Industrial Background
- Statistics
- Drafting
- Production Planning
- Work Measurement or Methods Analysis or Time and Motion Study
- Machine Processes or Manufacturing

Manufacturing, Automation or Robotics Background
- Drafting or Design
- Machine/Manufacturing Processes
- Metallurgy or Engineering Materials
- Electrical Circuits or Electrical Measurements or Physics III - Electricity
- Manufacturing, Automation or Robotics
- Microprocessors or Numerical Control

Instrumentation/Controls Background
- Electrical Drafting
- DC/AC Circuits
- Industrial Instrumentation
- Controls
- Digital/Analog Circuits

CIVIL ENGINEERING TECHNOLOGY PROGRAM

General Civil Engineering Technology Emphasis

Junior Year

ETGR	3071	Engineering Tech. Prof. Seminar	1
ETCE	3111	Structural Analysis I	3
ETCE	3121	Foundations and Earthwork	3
ETCE	3151	Soil Testing Laboratory	1
ETGR	3222	Engineering Economics	2
Directed Electives (b)			6
			16

ETCE	3112	Structural Analysis II	3
ETCE	3132	Hydraulics	3
ETGR	3171	Engineering Analysis I	3
ETCE	3150	Hydraulics & Materials Lab	1
Directed Electives (b)			6
			16

Senior Year

ETCE	3212	Structural Steel Design	3
ETCE	3262	Intro to Environmental Engineering	3
ETGR	3272	Applied Numerical Methods	2
CHEM	1251	Principles of Chemistry **or** GEOL 1200 Physical Geology (both with lab) (a)	4
Directed Electives (b)			3
			15

ETCE	3642	Senior Design Project	2
ETCE	3211	Reinforced Concrete Design	3
ETCE	3241	Highway Design & Construction	3
Major Elective (c)			3
Major Elective Lab			1
Directed Electives (b)			3
			15

CIVIL ENGINEERING TECHNOLOGY PROGRAM

Construction Engineering Technology Emphasis

Junior Year

ETGR	3071	Engineering Tech. Prof. Seminar	1
ETCE	3111	Structural Analysis I	3
ETCE	3121	Foundations & Earthwork	3
ETCE	3151	Soil Testing Lab	1
Directed Elective (b)			6
ETGR	3222	Engineering Economics	2
			16

ETCE	3112	Structural Analysis II	3
ETCE	3132	Hydraulics	3
ETGR	3171	Engineering Analysis I	3
ETCE	3150	Hydraulics & Materials Lab	1
Directed Electives (b)			6
			16

Senior Year

ETCE	3212	Structural Steel Design	3
ETCE	3243	Project Management Technology	3
ETCE	3281	Cost Estimating I	3
GEOL	1200	Physical Geology with Lab	4
Directed Elective (b)			3
			16

ETCE	3642	Senior Design Project	2
ETCE	3211	Reinforced Concrete Design	3
ETCE	3293	Mech. & Elec. Systems for Building	3
Major Elective (c)			3
Directed Electives (b)			3
			14

ELECTRICAL ENGINEERING TECHNOLOGY PROGRAM

Computer Engineering Technology Emphasis
Junior Year

ETGR	3071	Engineering Tech. Prof. Seminar	1

ETEE 3133 Analysis of Linear Networks I 3
ETEE 3153 ELET Lab I 1
ETGR 3171 Engineering Analysis I 3
ETEE 3183 Digital Design 3
Directed Elective (b) 3
14

CHEM 1251 Principles of Chemistry (a) 3
ETEE 3124 Analysis of Linear Networks II 4
ETEE 3156 ELET Laboratory II 1
ETEE 3285 Assembly Language Programming 3
Directed Elective (b) 3
14

Senior Year

ETEE 3211 Active Networks I 3
ETEE 3255 ELET Laboratory III 1
ETEE 3281 Computer Design 3
Major Elective (c) 3
Directed Electives (b) 6
16

ETEE 3641 Senior Design Project 1
ETEE 3212 Active Networks II 3
ETEE 3275 Integrated Circuit Applications 3
ETEE 3286 Microcomputer Applications 3
Directed Electives (b) 6
16

ELECTRICAL ENGINEERING TECHNOLOGY PROGRAM

Electronics Engineering Technology Emphasis

Junior Year

ETGR 3071 Engineering Tech. Prof. Seminar 1
ETEE 3133 Analysis of Linear Networks I 3
ETEE 3153 ELET Lab I 1
ETEE 3183 Digital Logic Design 3
ETGR 3171 Engineering Analysis I 3
Directed Elective (b) 3
14

CHEM 1251 Principles of Chemistry (a) 3
ETEE 3124 Analysis of Linear Networks II 4
ETEE 3156 ELET Lab II 1
ETEE 3285 Assembly Language Programming 3
Directed Elective (b) 3
14

Senior Year

ETEE 3211 Active Networks I 3
ETEE 3213 Industrial Electronics 3
ETEE 3257 ELET Lab III 1
Major Elective (c) 3
Directed Electives (b) 6
16

ETEE 3641 Senior Design Project 1
ETEE 3212 Active Networks II 3
ETEE 3222 Automatic Controls 3
ETEE 3214 Operational Amplifiers 3
Directed Electives (b) 6
16

FIRE SAFETY ENGINEERING TECHNOLOGY PROGRAM

ACCT 2121 Accounting **or**

ETGR3222 Engineering Economics 2
ETFS 3103 Principles of Fire Behavior 3
ETFS 3113 Building Fire Safety 3
ETFS 3123 Industrial Hazards & Electricity 3
ETFS 3124 Risk Management for Emergency Services. 3
ETFS 3144 Active Fire Protection 3
ETFS 3183 Fire Safety Engineering Problem Analysis.. 3
ETFS 3233 Applied Fire Design and Analysis 3
ETFS 3611 Professional Leadership Seminar 1
ETFS 4123 Command &Control of Major Disasters..... 3
ETFS 4243 Research Investigation 3
ETFS 4323 Advanced Fire Service Administration 3

POLS 3119 State Politics 3
POLS 3121 Urban Politics 3
POLS 3126 Administrative Behavior 3

PSYC 2171 Introduction to Organizational Psychology 3
PSYC 3174 Organizational Psychology 3

General Education 12
60

MANUFACTURING (Interdisciplinary) ENGINEERING TECHNOLOGY PROGRAM

General Manufacturing Engineering Technology Emphasis

Junior Year

ENGR 1201 Intro to Prof. Princ. & Practice 2
STAT 1220 Statistics (f) 3
ETME 3163 Instrumentation and Control 3
ETMF 3111 Manufacturing Processes 3
Directed Elective (b) 3
ETMF 3490 Manufacturing Eng. Tech. Practicum **or**
ENGR 3590 Engineering Co-op Education (e) 0
14

ETMF 3131 Computer Integrated Manufacturing 3
ETME 3251 Instrumentation Lab 1
CHEM 1251 Principles of Chemistry (a) 3
ETGR 3223 Engineering Economics 2
ETMF 3251 Computer Integrated Manufacturing Lab 2
Directed Elective (b) 3
ETGR 3695 Engineering Technology Practicum Sem 1
ETMF 3490 Manufacturing Eng. Tech. Practicum **or**
ENGR 3590 Engineering Co-op Education (e) 0
15

Senior Year

ETMF 3181 Digital Process Control 3
ETIN 3133 Quality Control 3
OPER 3100 Operations Management 3
Directed Electives (b) 6
ETGR 3695 Engineering Technology Practicum Sem. 1
ETMF 3490 Manufacturing Eng. Tech. Practicum **or**
ENGR 3590 Engineering Co-op Education (e) 0
16

ETGR 3643 Senior Design Project 3
Technical Elective (d) 3
Directed Electives (b) 9
ETGR 3695 Engineering Technology Practicum Sem. 1
16

Industrial Engineering Technology Emphasis

Junior Year

ENGR 1201 Intro. To Prof. Princ. & Practice 2
CHEM 1251 Principles of Chemistry (a) 3
ETMF 3111 Manufacturing Processes 3
ETGR 3223 Engineering Economics 2
STAT 1220 Statistics (f) 3
Directed Elective (b) 3
ETMF 3490 Manufacturing Eng. Tech. Practicum **or**
ENGR 3590 Engineering Co-op Education 0
16

ENGR 3670 Total Quality Systems 3
OPER 3100 Operations Management 3
ETIN 3103 Methods Analysis 3
Technical Electives (d) 3
Directed Elective (b) 3
ETGR 3695 Engineering Technology Practicum Sem. 1
ETMF 3490 Manufacturing Eng. Tech. Practicum **or**
ENGR 3590 Engineering Co-op Education 0
16

Senior Year

ETIN 3133 Quality Control 3
ETIN 3123 Production Control Systems 3
Directed Electives (b) 9
ETGR 3695 Engineering Technology Practicum Sem. 1
ETMF 3490 Manufacturing Eng. Tech. Practicum **or**
ENGR 3590 Engineering Co-op Education 0
16

ETIN 3203 Plant Layout 3
ETGR 3643 Senior Design Project 3
Technical Elective (d) 3
Directed Electives (b) 3
ETGR 3695 Engineering Technology Practicum Sem. . . 1
13

Recommended Manufacturing Engineering Technology Electives (where not required)

ITCS 2116 C Programming (3)
ETGR 3171 Engineering Analysis (3)
ETGR 3272 Applied Numerical Methods (2)
ETEE 3133 Analysis of Linear Networks 1 (3)
ETEE 3124 Analysis of Linear Networks II (4)
ETEE 3153 ELET Laboratory 1 (1)
ETEE 3183 Digital Logic Design (3)
ETEE 3213 Industrial Electronics (3)
ENGR 3670 Total Quality Systems (3)
GEOG 3150 Manufacturing Geography (3)
ETIN 3103 Methods Analysis (3)
ETIN 3123 Production Control Systems (3)
ETIN 3203 Plant Layout (3)
ETIN 3233 Occupational Safety (3)
ETIN 3263 Human Factors (3)
ETME 3113 Dynamics (3)
ETME 3123 Strength of Materials (3)
ETME 3133 Fluid Mechanics (3)
ETME 3151 Fluid Mechanics Lab (1)
ETME 3152 Stress Analysis Lab (1)
ETME 3163 Instrumentation and Controls (3)
ETME 3213 Machine Design (3)
ETME 3251 Instrumentation Lab (1)
ETMF 3113 Fundamentals of Optics (3)
ETMF 3114 Thin Films & Optical Coatings (3)
ETMF 3131 Computer Integrated Manufacturing (3)
ETMF 3141 Applied Optical Systems Lab (1)
ETMF 3141 Industrial Applied Optical Systems (3)
ETMF 3153 Optics Laboratory (1)
ETMF 3251 Computer Integrated Manufacturing Lab (2)
PSYC 2171 Industrial Psychology (3)

MECHANICAL ENGINEERING TECHNOLOGY

Junior Year

ETGR 3071 Engineering Tech. Prof. Seminar 1
ETME 3123 Strength of Materials 3
ETME 3152 Stress Analysis Laboratory 1
ETME 3133 Fluid Mechanics 3
ETGR 3171 Engineering Analysis I 3
Directed Elective (b) 3
14

ETME 3113 Dynamics 3
ETME 3143 Thermodynamics 3
ETME 3151 Fluid Mechanics Laboratory 1
ETGR 3222 Engineering Economics 2
CHEM 1251 Principles of Chemistry (a) 3
Major Elective (c) 3
15

Senior Year

ETME 3213 Machine Design 3
ETME 3163 Instrumentation and Controls 3
ETME 3252 Thermodynamics Laboratory 1
ETGR 3272 Applied Numerical Methods 2
Directed Electives (b) 6
15

ETGR 3643 Senior Design Project 3
ETME 3251 Instrumentation Laboratory 1
Major Elective (c) 3
Directed Electives 9
16

Notes regarding Curriculum Outlines.

a. A student who has previously taken a college-level course in general chemistry shall substitute for this requirement another course in chemistry, physics, biology or earth science as shown in the table below.

Students who have previously taken:	**Shall Take at UNC Charlotte:**
2 semesters of physics and no chemistry	Chemistry 1251
1 semester of physics and 1 semester of chemistry	Physics 1102 with lab
2 semesters	

of physics and 1 semester of chemistry (4 quarter hours)	Geology 1101 or 1200, Biology 1110, or Physics 1130

b. A directed elective is used to fulfill (1) General Education goals, and (2) the Foreign Language requirement. If these two requirements have been met, directed electives revert to major electives. All elective courses are to be non-remedial. Courses passed at other institutions cannot be repeated at UNC Charlotte to meet requirements of the Department of Engineering Technology. Subjects taken at UNC Charlotte are intended to increase students' knowledge and understanding.

c. Major elective courses must be upper-division courses offered by the William States Lee College of Engineering or courses related to the student's field of specialization and approved by the Department as major electives. Major elective courses are all 3000 level or above courses in the college of engineering plus, upon written approval by advisor, ITCS 2116, STAT 1220, GEOG 3150, OPER 3100, and PSYC 2171.

d. Due to the interdisciplinary nature of the program, a standard set of courses is not prescribed. Technical Electives are to be selected from a list maintained in the Department office based on: the students' interests, courses already completed as part of the AAS Degree, and a plan of study developed with an Engineering Technology Department advisor.

e. The Manufacturing Engineering Technology Program includes an optional series of three practicum experiences. These are normally completed through the Co-op program. However, students with opportunities for appropriate work experience through their employer can meet this requirement by completing three ETMF Practicum studies. Only full-time employed students who enter the program with opportunities for appropriate work experience through their employer can meet this requirement by completing three ETMF 3490 practicum studies. This option must be approved by the student's advisor upon admission into the Manufacturing Engineering Technology curriculum. For students who do not do co-op, the three semester hours of practicum are replaced with a three hour major elective.

f. If the student has completed a course in statistics, s/he must take ETGR 3171.

Department of Mechanical Engineering and Engineering Science

Chairperson: Professor Jayaraman Raja; *Bonnie E. Cone Distinguished Professor in Teaching:* Mohanty; *Norvin Kennedy Dickerson Jr. Distinguished Professor:* Hocken; *United Dominion Industries Distinguished Professor:* Patterson; *Professors:* Johnson, Kim, Leamy, Smith; *Associate Professors:* Estrada, Hari, Keanini, Munday, Wilhelm; *Assistant Professors*: Cherukuri, Coger; *Lecturer:* Hill; *Adjunct Professor*: Hanley, Kellam, Raugh, Thubrikar, Wheeler

Mechanical engineering is possibly the broadest of the engineering disciplines. Mechanical engineers are involved in almost all aspects of the technological problems facing today's society. Among the major concerns of the mechanical engineer are problems related to conversion, utilization and conservation of our limited energy resources. Additional important areas for the mechanical engineer include the design and analysis of machines, structures and manufacturing processes related to the industrial output of the nation. Increasingly this design and analysis is computer based using the techniques of computer-aided design (CAD/CAM).

A sound understanding of the engineering sciences is fundamental to the education of engineers in every discipline. The engineering sciences are generally identified as those areas of engineering that emphasize the application of the fundamental principles of the physical sciences, primarily physics and chemistry, to engineering problems. Some classical and emerging engineering areas recognized to fall within this field include thermodynamics, fluid mechanics, engineering mechanics, engineering materials, nuclear and chemical sciences, microelectronics theory and fabrication, manufacturing, metrology, and the solid state sciences.

The Department of Mechanical Engineering and Engineering Science offers an undergraduate program leading to a Bachelor of Science in Mechanical Engineering (B.S.M.E.) degree and graduate programs leading to Master of Science in Mechanical Engineering (M.S.M.E.), Master of Science in Engineering (M.S.E.) and Doctor of Philosophy (Ph.D.) degrees. Using the flexibility provided by the technical electives, and with engineering career counseling, a student can develop a variety of educational programs that would provide the background for professional engineering licensing and practice in any of the areas included within mechanical engineering and/or the engineering sciences. The student can also prepare for graduate study in mechanical engineering, materials science, or any of the recognized areas covered by the engineering sciences. Individualized study programs in one of the interdisciplinary fields involving the merger of engineering and the various science areas, such as bioengineering, microelectronics or chemical engineering sciences, can be developed.

The program objectives are as follows:

- To equip students to use analytical, computational, and statistical methods of engineering measurements and applications
- To develop the understanding of manufacturing methods so that graduates can contribute to the design, implementation and management of engineering systems.
- To prepare students to engage in the engineering design process by developing their skills at problem solving, planning, collaboration, and communication.

- To provide an education that allows graduates to understand the economic and ethical impact of their engineering decisions.
- To prepare students for successful participation as engineers in society, for graduate or professional studies, and for lifelong learning.

EARLY-ENTRY PROGRAM: the Master of Science in Mechanical Engineering

1. A student may be accepted into the early-entry Program at any time after completion of 90 semester hours of undergraduate work applicable to the B.S.M.E. degree. Admission must be approved by the Department Chair or Graduate Program Coordinator and admission is conditional pending the awarding of the undergraduate degree.

2. In order to be accepted to the Mechanical Engineering Early Entry Program, an undergraduate student must have at least a 3.2 overall grade point average and a 3.2 grade point average in the major. The applicant must have taken the appropriate graduate standardized test (GRE) and received acceptable test scores.

3. Students accepted into the early-entry program will be subject to the same policies that pertain to other matriculated graduate students. Early Entry students must finish their undergraduate degree before they complete 15 hours of graduate work.

The program in Mechanical Engineering is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET), 111 Market Place, Suite 1050, Baltimore, MD 21202 – Telephone (410) 347-7000.

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING (B.S.M.E.)

A major in Mechanical Engineering leading to the B.S.M.E. degree consists of a total of 122 credit hours. These requirements are:

English	6
Written and Oral Communication	3
Humanities and Social Science Electives	12
Economics	3
Mathematics	15
Physics	8
Chemistry	4
Science Elective	3
Electrical Engineering	3
Other Department Requirements	56
Technical Electives	9
Total	**122**

The social science and humanities electives must be chosen to satisfy Goals III, V-A, V-L and VI-X of University General Education requirements and to meet the objectives of a broad education consistent with the educational goals of the profession. This subject area must include some courses at an advanced level.

The science elective must be chosen from the physical, life, or earth sciences and must complement the student's overall educational plan to satisfy the college degree requirement.

Students must complete a statistics requirement by taking either MATH 3050 (Probability and Statistics for Engineers) or MEGR 3282 (Statistics Process Control and Metrology). MATH 3050 simultaneously counts as a mathematics or technical elective. MEGR 3282 counts as a technical elective. Students will not receive credit for both MATH 3050 and MEGR 3282. Students who fulfill the statistics requirement with MEGR 3282 may select their math elective from MATH 2164 or a 3000 level mathematics course approved by the Department.

The technical electives are chosen in consultation with the academic advisor. The student can use these electives to (1) obtain some breadth within the engineering sciences by choosing additional advanced courses from the various engineering sciences; (2) obtain significant depth within a particular area of mechanical engineering, or engineering science, through the use of available engineering science, mechanical engineering, science, mathematics and other engineering courses; and (3) prepare for graduate work in mechanical engineering, engineering science or some other engineering areas. The technical electives musts contain at least six hours of coursework dealing with engineering science, analysis, synthesis, or design, with the remaining three hours, being in engineering, science, mathematics, or business. Please see department guidelines for selection of these courses.

All mechanical engineering majors must satisfactorily complete ENGR 1201 during their first semester in attendance in mechanical engineering at UNC Charlotte. Mechanical engineering majors may not accumulate more than three repeats in departmental courses in the upper-division.

All mechanical engineering majors must satisfactorily complete ENGR 1201 during their first semester in attendance in mechanical engineering at UNC Charlotte. Mechanical engineering majors may not accumulate more than three repeats in departmental courses in the upper-division.

B.S.M.E. DEGREE IN MECHANICAL ENGINEERING

Common Freshman Year

ENGR 1201	Intro to Engineering I	2
CHEM 1251	Chemistry I	3
CHEM 1251L	Chemistry I Lab	1
MATH 1241	Calculus I	3
ENGL 1101	English I	3
HUM/SS Elective		3
		15

ENGR 1202	Intro to Engineering II	2
PHYS 2101	Physics I	3
PHYS 2101L	Physics I Lab	1
MATH 1242	Calculus II	3
ENGL 1102	English II	3

HUM/SS Elective 3
15

Sophomore Year

PHYS 2102 Physics II 3
PHYS 2102L Physics II Lab 1
MEGR 2141 Engr. Mechanics I 3
MATH 2241 Calculus III 3
ENGL 2116 Intro. To Technical Communications 3
HUM/SS Elective 3
16

MEGR 2180 Manufacturing Systems 4
MEGR 2156 Design Project Lab I 2
MEGR 2144 Solid Mechanics 3
MATH 2171 Differential Equations 3
ECGR 2161 Basic Electronic Engineering 3
15

Junior Year

MEGR 3111 Thermodynamics I 3
MEGR 3121 Dynamic Systems I 3
MEGR 3161 Engineering Materials 3
ECON 1201 or 1202 Economics 3
MEGR 3171 Measurements & Instrumentation 2
MEGR 3171L Instrumentation Laboratory 2
16

MEGR 3112 Thermodynamics II 3
MEGR 3122 Dynamic Systems II 3
MEGR 3116 Heat Transfer 3
MEGR 3156 Design Proj. Lab II 2
MEGR 3114 Fluid Mechanics 3
MEGR 3152 Mechanics & Materials Lab 1
15

Senior Year

MEGR 3255 Senior Design I 2
ME Technical Elective 3
Math Elective 3
Science Elective 3
MEGR 3221 Machine Analysis & Design 3
MEGR 3251 Thermals/Fluids Lab 1
15

MEGR 3256 Senior Design II 2
ME Technical Elective 3
Technical Elective 3
HUM/SS Elective 3
MEGR 3216 Thermal/Fluids Design 3
MEGR 3299 Professional Development 1
15

TOTAL HOURS 122

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING (B.S.M.E.)

Concentration in Motorsports Engineering

The Motorsports Engineering concentration area is intended for students interested in specialized and systematic training and education in the area of automotive engineering as it pertains to motorsports. Students completing the requirements described in this program will receive a special designation on their transcripts showing that they have completed the Motorsports Engineering concentration. Students must apply for admission and may enter the program during the sophomore or junior years only. To be admitted to the program students must have completed Physics I (PHYS 2101 & 2101L), Calculus I, II, and III (MATH 1241 & 1242), Engineering Mechanics I (MEGR 2141) with a grade of *C* or better and have a minimum GPA of 2.5.

The concentration area has three requirements:

1. Individual and team design projects beginning in the sophomore year (Project Lab I & II) must be completed in the automotive engineering area.

2. Students must complete Motorsports Clinic I, II, and III (MEGR 2299, 3355, 3356) in place of Professional Development (MEGR 3299) and Senior Design I & II (MEGR 3255 & 3256).

3. Students must select all three required technical electives from the prescribed list of motorsports engineering courses: MEGR 3210, MEGR 3211, MEGR 4112, MEGR 4143, or MEGR 4144. Other suitable technical electives such as MEGR 3890 may be approved by the Motorsports Engineering Faculty Advisor or Department Chair.

Common Freshman Year

ENGR 1201 Intro to Engineering I 2
CHEM 1251 Chemistry I 3
CHEM 1251L Chemistry I Lab 1
MATH 1241 Calculus I 3
ENGL 1101 English I 3
HUM/SS Elective 3
15

ENGR 1202 Intro to Engineering II 2
PHYS 2101 Physics I 3
PHYS 2101L Physics I Lab 1
MATH 1242 Calculus II 3
ENGL 1102 English II 3
HUM/SS Elective 3
15

Sophomore Year

PHYS 2102 Physics II 3
PHYS 2102L Physics II Lab 1
MEGR 2141 Engr. Mechanics I 3
MATH 2241 Calculus III 3
ENGL 2116 Intro. To Technical Communications 3
HUM/SS Elective 3
16

MEGR 2180 Manufacturing Systems 4
MEGR 2156 Design Project Lab I* 2
MEGR 2144 Solid Mechanics 3
MATH 2171 Differential Equations 3
ECGR 2161 Basic Electronic Engineering 3
MEGR 2299 Motorsports Clinic I 1
16

***Automotive Engineering Area**

Junior Year

MEGR 3111	Thermodynamics I	3
MEGR 3121	Dynamic Systems I	3
MEGR 3161	Engineering Materials	3
ECON 1201 or 1202	Economics	3
MEGR 3171	Measurements & Instrumentation	2
MEGR 3171L	Instrumentation Laboratory	2
		16

MEGR 3112	Thermodynamics II	3
MEGR 3122	Dynamic Systems II	3
MEGR 3116	Heat Transfer	3
MEGR 3156	Design Proj. Lab II*	2
MEGR 3114	Fluid Mechanics	3
MEGR 3152	Mechanics & Materials Lab	1
		15

***Automotive Engineering Area**

Senior Year

MEGR 3255	**Motorsports Engr Clinic II**	2
Mtrspts Technical Elective		3
Math Elective		3
Science Elective		3
MEGR 3221	Machine Analysis & Design	3
MEGR 3251	Thermals/Fluids Lab	1
		15

MEGR 3356	**Motorsports Clinic III**	2
Mtrspts Technical Elective		3
Mtrspts Technical Elective		3
HUM/SS Elective		3
MEGR 3299	Professional Development	3
		14

TOTAL HOURS 122

College of Information Technology

Dean: Mirsad Hadzikadic; *Executive in Residence:* Olin Broadway

BACKGROUND AND MISSION

The University of North Carolina at Charlotte's College Information Technology (IT) is a dynamic, exciting, educational and research institution that combines the knowledge and expertise of multidisciplinary faculty, industry professionals, and students. The College of IT was formed in 2000, with the mission of educating information specialists, conducting leading-edge research, and partnering with area businesses of great importance to the Charlotte community and the University.

With educational programs rooted in a strong foundation of research, the College of IT combines the talents of on- and off-campus partners in achieving its mission. Academic programs include bachelor's, master's, and Ph.D. degree programs in computer science, software and information systems, and information technology. Committed to the concept of life-long learning, the College also offers undergraduate and graduate certificate programs.

A key component of all College of IT academic programs is the team interaction between students, faculty, and community partners. Through their involvement in real-world projects, students apply what they learn, thus, giving them practical experience as they help businesses solve information technology challenges.

The three primary missions of the College of IT are:
- to educate and prepare the information technology professionals of tomorrow;
- to conduct leading-edge research in enterprise information systems; and,
- to partner with area industry to develop information technology solutions.

Computer Science Program. The Computer Science Department offers a wide variety of programs to match the diverse requirements of employers. The computer science major may pursue either a Bachelor of Science or a Bachelor of Arts degree.

The bachelor of science program offers the student two very different concentrations: computer science or computer engineering. The computer science option is centered on software development. Theoretically based, this program prepares students to continue their education in master's or doctoral programs, or to enter the business world as a computer scientist. The computer engineering option prepares the graduate to enter the computer industry either as a computer hardware design engineer or as a computer scientist with a heavy dose of mathematics, the physical sciences, and electrical engineering.

The bachelor of arts option is in computer science . As in the bachelor of science program, the computer science concentration prepares the student to enter the business world as a computer scientist. The emphasis in this program is less theoretical and mathematical, and more on the applied side.

The curriculum provides flexibility for the student to tailor a program to meet her or his needs and objectives. For the computer science option in the bachelor of science or Bachelor of Arts degrees, the student must select a minimum of 15 hours outside of computer science in which to study. This "minor-like" program allows the student to select from the full spectrum of University programs and majors, including the University Honors Program.

Software and Information Systems Program. The Department of Software and Information Systems is primarily focused on the study of technologies and methodologies for information system architecture, design, implementation, integration, and management. An illustrative list of questions/issues of interests includes:

- Analysis and design methodologies of component-based software systems
- Integration and interoperation of information systems
- Theories and methodologies of software development
- Information system security architecture and protocols
- Design of efficient heterogeneous computer networks
- Architectures for distributed systems
- Collaborative system technology and design
- Human/computer interaction
- Design of information systems based on ubiquitous /pervasive computing
- Software engineering
- Quality, testing, and simulation of software designs
- Social, ethical, and policy issues related to IT
- Information system architectures for electronic enterprise
- Technologies for information system privacy

The Software and Information Systems Department offers a Bachelor of Arts program that focuses on the applications of information technology. Software is the driving force of the emerging information economy. The Department of Software and Information Systems focuses on issues related to developing software, information systems, and their interactions with people. This degree program is committed to best prepare students to match the diverse requirements of employees.

SPECIAL COLLEGE PROGRAMS

Cooperative Education Program. Students in the College of Information Technology may obtain practical work experience while pursuing their degree by participating in cooperative education, whereby a student alternates semesters of academic study with semesters of work experience in industry. The work experience is under the direction of the student's department and is closely related to his or her field of study.

To be eligible for the Co-op program, students in the College of Information Technology must have completed at least 24 credit hours at UNC Charlotte, including a number

of specified courses, with a minimum GPA of 2.50. A transfer student is expected to have completed 12 hours at UNC Charlotte, with those same specified courses.

For an undergraduate to be officially designated as a Co-op student, he or she must participate in at least two semesters of work experience. Consequently, participation in Co-op Education may mean that the student will take five years to complete the programs at UNC Charlotte.

Students interested in learning more about the advantages and opportunities of participating in this program should contact the University Career Center.

Internships. A number of opportunities for internships exist for students in the College. These internships may be with or without pay and with or without academic credit. Students interested in learning more about these opportunities should consult with their advisor and with the College of Information Technology program coordinator in the University Career Center.

Department of Computer Science

Chairperson: Zbigniew Michalewicz; *Associate Chairperson:* Associate Professor Lejk; *Professors:* Allen, Ras, Wilkinson; *Professor Emeritus:* Epstein, Revesz, Schell; *Associate Professors:* Chen, Long, Mostafavi, Subramanian, Xiao; *Associate Professor Emeritus:* Razavi; *Assistant Professors:* Dahlberg, El-Kwae, Najarian; *Adjunct Professor:* Wieczorkowski; *Faculty Associate:* Robinson

Computer Science is the term applied to areas of study centering on the organizational and structural properties of systems, arrays of symbols, and mechanical languages which find their application in the processing and communication of information. The computer scientist's concerns are:

- the organization and interaction of equipment constituting an information processing system
- the development of software systems to control and communicate with equipment
- the derivation and study of procedures and basic theories for the specification of processes, and
- the application of systems, software, procedures, and theories of computer science to other disciplines

The Computer Science Department offers programs leading to three degrees: Bachelor of Arts, Bachelor of Science, and Master of Science. (See the *Graduate Catalog* for information on the M.S. degree.) Students are prepared for their profession through a comprehensive program of courses, aided by some of the latest computer equipment available.

Cooperative Education in Computer Science. By participating in the Cooperative Education program, students in computer science may pursue their education along with alternating work experiences so that they may be better prepared to enter their chosen professional career. Interested students should contact the *University Career Center* for more information.

BACHELOR OF ARTS: COMPUTER SCIENCE

The *Computer Science Concentration* consists of 45 hours in computer science and 15 hours in mathematics. Courses included are: ITCS 1214, 1215, 2163, 2214, 2215, 3102, 3155, 3160, 3166, 3650, 3551, 3688, and six semester hours of approved ITCS or ITIS courses numbered 3000 or above; ITIS 2111, MATH 1120, 1165, 2164, STAT 1220, 1223; or MATH 1241, 1242, 1165, 2164, STAT 2122.

A component of related work must be included, consisting of 15 semester hours of approved non-computer science courses forming an integrated program of secondary strength, or nine semester hours of approved mathematics courses at the 3000 level or above. If the latter option is selected, six hours of additional electives must be selected.

BACHELOR OF SCIENCE: COMPUTER SCIENCE

The *Computer Science Concentration* consists of 51 hours of computer science and 15 hours of mathematics courses. These include: ITCS 1214, 1215, 2181, 2214, 2215, 3102, 3143, 3155, 3160, 3166, 3182, 3650, 3651, 3688, and nine hours of approved ITCS or ITIS elective courses numbered 3000 or above. MATH 1241, 1242, 1165, 2164, STAT 2122.

A component of related work must be included consisting of 15 semester hours of approved non-computer science courses forming an integrated program of secondary strength, or nine semester hours of approved mathematics courses at the 3000 level or above. If the latter option is selected, six hours of additional electives must be selected.

BACHELOR OF SCIENCE: COMPUTER SCIENCE, COMPUTER ENGINEERING CONCENTRATION

The *Computer Engineering Concentration* consists of 39 hours of computer science and 18 hours of mathematics. These include: ITCS 1214, 1215, 2181, 2214, 2215, 3102, 3143, 3155, 3182, 3183, 3681, 3682, 3688. MATH 1241, 1242, 1165, 2164, 2171, STAT 2122. Technical Electives: Twelve hours of ITCS and ECGR courses that must be approved by the Department.

Students must also complete PHYS 2101, 2101L, 2102, 2102L, and 3141, and CHEM 1251 and 1251L. A component of related work must include 11 hours of electrical and computer engineering courses: ECGR 2111, 2112, 2155, 2156, and 3131. ECON 1201 or 1202 must also be taken.

Information Science Minor

Requirements for the minor in Computer Science include completion of 21 hours of computer science, to include ITCS 1214, 1215, 2214, 3112, 3143, 3155 and 3160. Also required is MATH 1165.

Computer Science Minor

Requirements for the minor in Computer Science include completion of 21 hours of computer science, to

include ITCS 1214, 1215, 2214, 2215, 3155, 3160, and 3688. Also required is MATH 1165.

Certificate Program in Computer Programming

The Computer Science Department offers a certificate in Computer Programming. A certificate will be awarded by the Computer Science Department to post-baccalaureate students (students having earned a bachelor's degree in any field, with one semester of calculus), who have completed the course requirements listed below:

ITCS	1214	Introduction to Computing I
ITCS	1215	Introduction to Computing II
ITCS	2214	Data Structures
ITCS	2215	Design and Analysis of Algorithms
ITCS	3112	Design and Implementation of Object-Oriented Systems
ITCS	3155	Software Engineering
ITCS	3160	Data Base Design and Implementation **or**
ITCS	3145	Introduction to Parallel Computing
MATH	1165	Introduction to Discrete Structures

Certificate Program in Computer Architecture

The Computer Science Department offers a certificate in Computer Programming. A certificate will be awarded by the Computer Science Department to post-baccalaureate students (students having earned a bachelor's degree in any field, with one semester of calculus), who have completed the course requirements listed below:

ITCS	1214	Introduction to Computing I
ITCS	1215	Introduction to Computing II
ITCS	2181	Computer Logic and Design
ITCS	3182	Computer Organization and Architecture
ITCS	3183	Hardware Systems Design
ITCS	3143	Operating Systems

CURRICULUM OUTLINE: B.A. DEGREE IN COMPUTER SCIENCE

Freshman Year

Fall			Spring		
ITCS	1214	3	ITCS	1215	3
MATH	1120*	3	MATH	1165*	3
ENGL	1101	3	STAT	1220*	3
GOAL	V	3	GOAL	VI	3
GOAL	VI	3	ENGL	1102	3
		15			15

Sophomore Year

Fall			Spring		
ITIS	2111	3	ITCS	2215	3
ITCS	2214	3	COMM	2105	3
ITCS	2163	3	MATH	2164*	3
STAT	1223*	3	GOAL	IV	4
ENGL	2116	3	Elective		3
		15			16

Junior Year

Fall			Spring		
ITCS	3102	3	ITCS	3155	3
GOAL	IV	4	ITCS	3160	3
GOAL	V	3	ITCS	3166	3
Related Work		3	Related Work		6
		13			15

Senior Year

Fall			Spring		
ITCS	3650	3	ITCS	3651	3
ITCS	3688	3	ITCS/ITIS Elective		3
ITCS/ITIS Elect		3	Electives		6
Related Work		3	Related Work		3
GOAL	IV	4			15
		16			

Total Hours 120

* A mathematics option consisting of MATH 1241, 1242, 1165, and 2164, and STAT 2122 may be selected as an alternate to the math courses listed.

CURRICULUM OUTLINE: B.S. DEGREE IN COMPUTER SCIENCE

Freshman Year

Fall			Spring		
ITCS	1214	3	ITCS	1215	3
MATH	1241*	3	MATH	1242	3
ENGL	1101	3	ENGL	1102	3
GOAL	VI	3	GOAL	IV	4
GOAL	V	3	GOAL	VI	3
		15			16

Sophomore Year

Fall			Spring		
ITCS	2181	3	ITCS	2215	3
ITCS	2214	3	MATH	2164	3
STAT	2122	3	GOAL	IV	4
MATH	1165	3	Elective		3
ENGL	2116	3	Related Work		3
		15			16

Junior Year

Fall			Spring		
ITCS	3102	3	ITCS	3688	3
ITCS	3182	3	ITCS	3155	3
ITCS/ITIS Elective		3	ITCS/ITIS Elective		3
GOAL	V	3	Related Work		3
Related Work		3	Elective		3
		15			15

Senior Year

Fall			Spring		
ITCS	3650	3	ITCS	3651	3
ITCS	3160	3	ITCS	3143	3
ITCS/ITIS Elective		3	ITCS	3166	3
Related Work		3	Related Work		3
Electives		4			12
		16			

Total Hours 120

CURRICULUM OUTLINE: B.S. DEGREE, COMPUTER ENGINEERING CONCENTRATION

Freshman Year

Fall			Spring		
ITCS	1214	3	ITCS	1215	3
MATH	1241	3	MATH	1242	3

CHEM	1251	3	PHYS	2101	3
CHEM	1251L	1	PHYS	2101L	1
ENGL	1101	3	ENGL	1102	3
		13	GOAL	VI (X)	3
					16

Sophomore Year

	Fall			Spring	
ITCS	2181	3	ITCS	2215	3
ITCS	2214	3	ECGR	2111	3
ENGL	2116	3	ECGR	2155	I
MATH	1165	3	MATH	2I64	3
PHYS	2102	3	MATH	2I71	3
PHYS	2102L	1	PHYS	3141	3
		16			16

Junior Year

	Fall			Spring	
ITCS	3102	3	ITCS	3102	3
ECON	1201 or		ITCS	3155	3
	1202	3	ITCS	3688	3
ECGR	2112	3	ECGR	3131	3
ECGR	2156	1	GOAL	V	3
GOAL	V	3			15
STAT	2122	3			
		16			

Senior Year

	Fall			Spring	
ITCS	3183	3	ITCS	3143	3
ITCS	3681	3	ITCS	3682	3
Tech Electives		6	Tech Electives		6
Free Electives		4			I2
		16			

Total Hours 120

EARLY-ENTRY PROGRAM: the Master of Science in Computer Science

1. A student may submit an application after completion of at least 75 undergraduate hours. A student may not be admitted into the program until completion of at least 90 undergraduate hours.

2. An overall GPA of 3.5 or better is required for early-entry into the graduate program.

3. Student must submit satisfactory scores on the aptitude portion of the GRE tests.

No courses shall be counted toward both BS/BA and MS degrees in Computer Science.

Department of Software and Information Systems

Chairperson: Professor Bei-Tseng (Bill) Chu; *Associate Professor:* Hadzikadic; *Assistant Professors:* Ahn, Tolone

The Software and Information Systems Department offers a program leading to the Bachelor of Arts in Software and Information Systems, Master of Science in Information Technology (See the *Graduate Catalog* for information on the M.S. degree.), as well as a graduate certificate program in Information Technology Management. Students are prepared for their profession through a comprehensive program of courses, aided by some of the latest computer and communication equipment available.

Cooperative Education in Software and Information Systems. By participating in the Cooperative Education program, students in the Department may pursue their education along with alternating work experience so that they may be better prepared to enter their chosen professional career. Interested students should contact the University Career Center for more information.

BACHELOR OF ARTS: SOFTWARE AND INFORMATION SYSTEMS

This program consists of 48 hours in software and information systems and computer sciences as well as 15 hours in mathematics. Courses included are: ITCS 1214, 1215, 22I4, 2215, 3160, 3166, and 3688. ITIS 3112, 3130, 3155, 3650, 3651, 3200, 4170 and six semester hours of approved ITIS or ITCS courses numbered 3000 or above. MATH 1120, 1165, 2164, STAT 1220, I223.*

A component of related work must be included, consisting of 15 semester hours of courses that form a coherent area of study that is related to developing applications of information systems.

CURRICULUM OUTLINE: B.A. DEGREE IN SOFTWARE AND INFORMATION SYSTEMS

Freshman Year

	Fall			Spring	
ITCS	12I4	3	ITCS	1215	3
MATH	1120*	3	ENGL	1102	3
GOAL	IV	4	MATH	1165*	3
GOAL	VI	3	STAT	1220*	3
		13	GOAL	IV	4
					16

Sophomore Year

	Fall			Spring	
ITCS	2214	3	Related	Work	6
STAT	1223*	3	ITCS	2215	3
ENGL	2116	3	COMM	2105	3
MATH	2164*	3	Goal	VI	3
Related	Work	3			15
		15			

Junior Year

	Fall			Spring	
ITIS	3130	3	ITCS	3160	3
ITCS	3166	3	ITIS	3155	3
ITCS	3688	3	ITIS	3200	3
ITIS	3112	3	Related	Work	3
GOAL	V	3	Electives		3
		15			15

Senior Year

	Fall			Spring	
ITIS/ITCS	Elect.	3	ITCS/ITIS	Elect.	3
ITIS	3650	3	ITIS	3651	3
Related	Work	6	GOAL	V	3

Elective	3	Related Work	3
	15	Elective	4
			16

Total Hours 120

* A mathematics option consisting of MATH 1241, 1242, 1165, and 2164, and STAT 2122 may be selected as an alternate to the math courses listed.

For Graduate Certificates, Master's degrees in Information Technology and Computer Science, and Ph.D. in Information Technology, please see the Graduate Catalog.

College of Nursing and Health Professions

Dean: Professor Bishop

Department of Adult Health Nursing
Chairperson: Associate Professor Hussey; *Professor:* Travis; *Professors Emeriti:* Caddell, Carper, Hagopian, Jernigan, Smith; *Associate Professors*: Curran, Hussey, Larsen, Moore, Wilmoth; *Associate Professor Emeritus:* Fray, Mayo; *Assistant Professors*: Hardin, Sanders, L. Steele; *Assistant Professor Emerita*: King; *Lecturers:* Daniels, Johanson, J. Steele, Smith

Department of Family and Community Nursing
Chairperson: Associate Professor Cody; *Professors:* Bishop, McAuley; *Professors Emeritus:* Nicholson, Hymovich; *Associate Professors*: Boggs, Edwards, Janken, Langford, Neese, Newman; *Associate Professors Emeritus:* Clinton, Head; *Assistant Professors*: Foss, Maynard, Ruth; *Lecturers:* DeGroot, Morris, Patton, Toth

Department of Health Promotion and Kinesiology
Chairperson: Professor Lightfoot; *Professors:* Berne, Pyle; *Professors Emeriti:* Bostian, Murphy, Tillotson; *Associate Professors:* Healey; *Assistant Professors*: R. DiGioacchino-Debate, Turner, Wdowik; *Lecturers:* Barto, Brooks, K. Debate, Fielding, Kohn, Probst, McCall-Stiles, Wood

Purpose. The College of Nursing and Health Professions provides professionally recognized nursing education programs, health fitness and health promotion programs, continuing education programs, outreach services, research, and professional activities to advance health care science and practice, and health promotion for the peoples of North Carolina.

Programs. Degrees awarded through the College are the Bachelor of Science in Nursing (B.S.N.), the Master of Science in Nursing (M.S.N.), the dual degree Master of Science in Nursing and Master of Health Administration (M.S.N./M.H.A.) Bachelor of Science in Health Fitness, and the Master of Science in Health Promotion. All nursing degree programs offered by the College are accredited by the National League for Nursing and have preliminary approval from the Commission on Collegiate Nursing Education.

Technical Standards. Technical standards define the attributes that are considered necessary for students to possess in order to complete their education and training, and subsequently enter clinical practice. These technical standards are prerequisites for entrance to, continuation in, and graduation from a student's chosen program in the College of Nursing and Health Professions at the University of North Carolina at Charlotte.

Students must possess aptitude, ability, and skills in four areas: Psychomotor (coordination/mobility); Senses (visual, auditory, tactile, olfactory); Communication (verbal, nonverbal, written); and Behavioral/Social Attributes.

The technical standards described by the student's chosen program are critically important to the student and must be performed by the student. Contact specific programs for detailed technical standards. *Reasonable accommodation of disability will be provided after the student notifies the Department of the disability and appropriate professionals have documented the disability.*

BACHELOR OF SCIENCE IN NURSING

The Bachelor of Science in Nursing degree (B.S.N.) requires a minimum of 120 semester hours. The last 30 semester hours must be earned at UNC Charlotte.

Upper-Division Nursing Major

Requirements for Admission. Admission decisions to the Upper-Division Nursing Major are made by the College for the Fall of each academic year. Not all applicants who meet the minimum requirements can be accommodated. *Applicants are competitively reviewed for admission based on their cumulative grade point average on college transferable coursework and their grade point average in the required prerequisite science courses.* Consistent with University policy, the College offers admission to applicants whose credentials present the best qualifications among those meeting minimum requirements.

Minimum criteria for application to the Nursing major are: a cumulative grade point average of 2.5 or better in all college coursework, a minimum of a *C* in all required prerequisites, and the completion of required nursing prerequisites by the end of the Spring semester prior to the Fall for which application is made.

Completed applications are accepted through January 15 of the academic year preceding the Fall for which admission is sought. Application forms are available in the Office of Student Services, College of Nursing and Health Professions. Admission decisions are communicated in writing by the College. Applicants who are not admitted may reapply for a future Fall term.

All students admitted to the entry level BSN curriculum need to have prerequisite computer knowledge in using e-mail, word processing (create/save/open/retrieve), file management, editing, formatting), and using an internet browser (search and navigate).

Prerequisites. Students are required to complete ENGL 1101; CHEM 1203 and 1204 (or CHEM 1251 and 1252); BIOL 1273, 1274, and 1259; STAT 1222 (or STAT 1220 or 1221); PSYC 1101 and 3151; SOCY 1101 and 2132; and NURS 1100 (or an equivalent growth and development course, e.g. EDUC 2150) prior to enrollment in clinical nursing courses.

Pre-Nursing. Freshmen seeking admission to the nursing major may be admitted to Pre-Nursing. Transfer and change of major students, who have not completed all prerequisites, may be admitted to Pre-Nursing. Applicants

to Pre-Nursing must have a minimum overall 2.5 grade point average on all college work attempted. **Admission to Pre-Nursing does not automatically admit an applicant to the Nursing Major.**

RN/BSN Curriculum

Requirements for Admission. Registered Nurses seeking a Bachelor of Science in Nursing degree may apply for admission to the RN/BSN curriculum. Criteria for admission to the program are a current unencumbered license as a Registered Nurse in North Carolina, a cumulative grade point average of 2.5 or better in all college coursework, and at least a *C* in all required nursing prerequisites by the end of the semester prior to the semester for which application is made.

Admission decisions are made by the College. *Applicants are competitively reviewed for admission based on their cumulative GPA in all college transferable coursework and their GPA in required prerequisite science courses.* Students are admitted in cohorts two times each academic year. Completed applications are accepted from November 15 to March 15 for the fall cohort and from May 15 to October 1 for the spring cohort. Applications are available from the Office of Student Services in the College. Admission decisions are communicated in writing by the College. Applicants who are denied may re-apply.

All students admitted to the RN-BSN completion curriculum need to have prerequisite computer knowledge in using e-mail, word processing (create/save/open/retrieve), file management, editing, formatting, and using an internet browser (search and navigate). The RN-BSN completion curriculum offers a significant number of web-based and/or web-enhanced courses.

RN/BSN Curriculum Prerequisites. Students are required to complete ENGL 1101; CHEM 1203 and 1204 (or CHEM 1251 and 1252); BIOL 1273, 1274, and 1259; STAT 1222 (or 1220 or 1221); PSYC 1101 and PSYC 3151; SOCY 1101 and 2132; and NURS 1100 (or an equivalent growth and development course, e.g. EDUC 2150).

Pre-RN/BSN. Registered nurses seeking admission to the RN/BSN curriculum who need to complete nursing prerequisites and/or General Education courses may apply for admission to Pre-RN/BSN. Applicants must have a cumulative GPA of at least 2.5 on all college work attempted. **Admission to Pre-RN/BSN does not automatically admit an applicant to the RN/BSN Curriculum.**

Prerequisites for Participation in Clinical Experiences

Immunization and Health Status. Prior to admission to the major, all students must submit evidence of a physical examination, including specific communicable disease screening. The Tine test or P.P.D. must be repeated and the results submitted annually as long as the student is enrolled in clinical courses. Students must present documentation of a completed series of HBV immunizations prior to any contact with patients/clients, or sign a declination form indicating a refusal of the vaccination.

CPR Certification. For all clinical courses, it is the student's responsibility to obtain and maintain CPR Certification (adult, infant and child) for health care providers. The only CPR certification accepted is the American Heart Association – Health Care Provider and the Red Cross – Professional Rescuer. Evidence of current CPR Certification must be submitted annually.

Universal Precautions. All students must successfully complete a College computer-based exam on universal precautions each year of the professional program.

Drug Testing and Criminal Background Checks. As a student in a professional program in the College of Nursing and Health Professions, you may be asked by a clinical facility to undergo drug testing and/or have a criminal background check before being allowed to participate in a clinical experience at that facility.

Requirements for Progression in the Nursing Program

In order to promote the progression of safe practitioners from one level to the next within the nursing program and eventually into the nursing profession:

1. Students must achieve a grade of *C* or better in each nursing course. In clinical courses, the student must achieve at least a *C* in the classroom portion of the course and must participate in clinical education programs which make up the clinical component of the course and complete the clinical component with a rating of satisfactory or better.
2. All Level I courses must be successfully completed (grade of *C* or better) before the student can advance to Level II clinical courses. All Level II courses must be successfully completed before the student can advance to Level III courses. A GPA of 2.0 or better must be maintained.
3. No course in the Nursing major can be taken as transient study. Transfer credit for nursing courses will be considered on an individual basis.
4. Students are **permitted to repeat a nursing course once only if space allows and may repeat a maximum of one nursing course during matriculation in the Nursing major.** Taking a challenge examination constitutes one attempt at the course. Failure of a challenge examination requires the student to enroll in the course. A student who repeats a nursing course and does not achieve at least a *C* is ineligible to continue enrollment in the College. A student dismissed from nursing under this policy has the right to use the readmission appeal process.
5. Students who do not complete successfully NURS 4090 (a given section) must repeat NURS 4090 (any section, i.e., not restricted to a repeat of the section they have failed).
6. Students are expected to be computer literate.
7. Students must achieve at least 2.0 GPA in the nursing major to graduate.

CURRICULUM OUTLINE: B.S.N. DEGREE

Freshman Year

ENGL 1101* (Goal I) 3
MATH 1100 (Goal II) 3
PSYC 1101* (Goal VI: C) 3
CHEM 1203 or 1251* (Goal IV) 4
Foreign Language** (Goal I) 3

ENGL 1102 (Goal 1) 3
STAT 1220, 1221, or 1222* (Goal II) 3
CHEM 1204 or 1252* (Goal IV) 4
Foreign Language** (Goal I) 3

Sophomore Year

BIOL 1259* 4
BIOL 1273* 4
PSYC 3151* 3
SOCY 1101* (Goal III) 3
Elective (Goal I: W) 3

BIOL 1274* 4
SOCY 2132* (Goal VI: C) 3
NURS 1100* (***) 3
Elective (Goal V: L) 3
Elective (Goal V: A) 3

Junior and Senior Years: Upper-Division Nursing Major

Level I

NURS 3101 Concepts and Skills for Professional Nursing 5
NURS 3103 Pharmacology in Health and Illness 3
NURS 3104 Nutrition in Health and Illness (a) 3
NURS 3113 Health Assessment 3
NURS 3114 The Nursing Profession (a) 2

Level II

NURS 3200 Research and Theoretical Foundations of Nursing 3
NURS 3201 Nursing Care of the Childbearing Family 6
NURS 3202 Nursing Care of Children 6
NURS 3203 Nursing Care of the Adult I 6

Level III

NURS 3251 Advanced Professional Issues and Roles 3
NURS 3252 Community Health Nursing (Goal I: W) (Goal VI: X) 6
NURS 3253 Nursing Care of the Adult II 6
NURS 3254 Mental Health Nursing 6
NURS 4090 Selected Topics in Nursing 2-3

* *Prerequisite to Nursing*
** *Students may need to complete one or more of these courses based on result of foreign language proficiency testing.*
*** *Human Development Throughout the Life Span or any comparable course will meet this requirement.*
(a) Open to non-majors.

CURRICULUM OUTLINE: RN/BSN COMPLETION - CURRICULUM

General Education Requirements and * Prerequisites for the Nursing Major

ENGL 1101 (Goal I)* 3
MATH 1100 (Goal II) 3
PSYC 1101 (Goal VI: C)* 3
CHEM 1203 or 1251 (Goal IV)* 4
Foreign Language** (Goal I)(a) 3
STAT 1220, 1221, or 1222 (Goal II)* 3
ENGL 1102 (Goal 1) 3
CHEM 1204 or 1252 (Goal IV)* 4
Foreign Language** (Goal I)(a) 3

BIOL 1259* 4
BIOL 1273* 4
PSYC 3151* 3
SOCY 1101 (Goal III)* 3
Elective (Goal I: W) 3
BIOL 1274* 4
SOCY 2132 (Goal VI: C)* 3
NURS 1100* (b) 3
Elective (Goal V: L) 3
Elective (Goal V: A) 3

RN/BSN: UPPER-DIVISION NURSING MAJOR

NURN 3100 Professional Nursing Perspectives (c) ... 3
NURS 3200 Research and Theoretical Foundations of Nursing 3
NURS 4090 Selected Topics in Nursing (may be taken Fall or Spring) 2-3
NURS 3113 Health Assessment 3
NURN 4400 Professional Nurse Practicum/Seminar 6
NURS 4090 Selected Topics in Nursing (may be taken Fall or Spring) 3
NURN 4251 Issues in Nursing Leadership 3
NURS 3252 Community Health Nursing 6
NURN 4170 Information Technology: Applications in Health Care 3

(a) Students may need to complete one or more of these courses based on results of foreign language proficiency testing. Completion of these courses would require additional credit hours beyond the 120 hours.

(b) *Human Growth and Development Through the Life Span* or any comparable course will meet this requirement.

(c) Students are awarded 36 credit hours upon successful completion of NURN-3100.

EARLY-ENTRY OPTION: the Master of Science in Nursing

The early-entry RN/MSN option is designed for highly qualified diploma or AD prepared registered nurses who wish to follow an accelerated route to the MSN degree. Students entering this option must first be admitted to the RN/BSN curriculum. During the first semester of the RN/BSN curriculum, students apply for admission to the MSN program.

Students must meet all admission requirements of the MSN program to include satisfactory performance on the GREs or MATs, have a GPA of at least 3.2 overall, completed at least 75 hours of college coursework, letters of recommendation, a minimum of one year of nursing practice, and have completed at least 9 hours of work at a senior University. Students can be admitted to the following specialty concentrations: Community Health, Adult Health or Psych/Mental Health Nursing. A student may not be admitted into the program until completion of at least 90 undergraduate hours.

Upon conditional admission to the MSN program, six graduate credit hours will be substituted for six required undergraduate hours. NURS 6115 will be substituted for NURN 4251. NURS 6160 will be substituted for NURS 4090. The designated graduate courses are MSN courses required of all students in the MSN program regardless of the clinical specialty concentration.

Department of Health Promotion and Kinesiology (HPKD)

Chairperson: Professor Lightfoot; *Professors:* Berne, Lightfoot, Pyle; *Professor Emeriti:* Bostian, Murphy, Tillotson; *Associate Professor:* Healey; *Assistant Professors:* DiGioacchino-DeBate, Turner, Wdowik; *Lecturers:* Barto, Brooks, DeBate, Fielding, Kohn, Probst, Stiles, Wood; *Adjunct Faculty:* Anderson, Applegate, Barringer, Barron, Lawrence, Luxton, Pounds

Health promotion is the combination of educational and environmental supports for actions and conditions of living conducive to health. Kinesiology is the study of human movement and the application of the knowledge gained to the whole range of movement-supported performance, from reading and writing to throwing and balancing. Portions of the curriculum emphasize health promotion and kinesiology separately, but most aspects combine the strengths of the two disciplines. Undergraduate opportunities include a Bachelor of Science degree in Health Fitness, a major option in Athletic Training, a minor in Interdisciplinary Health Studies, and curricula in Motor Development and Learning, and Lifetime Fitness and Sports Skills.

The **Health Fitness** major offers preparation for employment as health fitness practitioners in business and industry, health agencies, hospitals, fitness centers or any other setting which provides health enhancement programs for clients. Within the Health Fitness major the following specialty areas are offered: **Aerobics, Aquatics, Perceptual Motor Therapy, Lifetime Fitness and Sports, and Outdoor Adventure.** The **Pre-Health Fitness** major is the classification that indicates that you are in a preparatory program for the Health Fitness major. The **Athletic Training Major Option** enables students to prepare themselves to earn certification as athletic trainers and qualify for career opportunities in schools, colleges, medical clinics, business and industry, professional sports teams, and commercial health promotion agencies. Personal health enhancement opportunities are available through **Lifetime Fitness and Sports Skills** courses and the Healthy Lifestyle course.

BACHELOR OF SCIENCE

Health Fitness. Applicants who satisfy freshman or transfer requirements for admission to the University are eligible for admission to the Pre-health Fitness major. **A complete sequence of courses can be found at http://www.uncc.edu/colleges/health/hpk.**

Pre-Health Fitness. Students who apply for the Health Fitness Major are initially classified as Pre-Health Fitness majors until they meet the following requirements: cumulative GPA of 2.0 or higher; completion of 60 hours; and successful (grade of C or better) completion of BIOL 1273, BIOL 1273L, BIOL 1274, BIOL 1274L, CHEM 1203, CHEM 1203L, CHEM 1204, CHEM 1204L, PHIL 2101, CSCI 1101, STAT 1222, PSYC 1101, COMM 1101, COMM 2105, MATH 1101, HPKD 2101, HPKD 2150, and HPKD 2290.

A complete sequence of courses can be found at http://www.uncc.edu/colleges/health/hpk.

ATHLETIC TRAINING MAJOR OPTION

The Athletic Training Curriculum is a major option within the health fitness degree. The emphases of the curriculum are risk management and injury prevention, pathology of injuries and illnesses, acute care of injuries and illnesses, pharmacology, therapeutic modalities, therapeutic exercise, general medical conditions and disabilities, nutritional aspects of injuries and illnesses, psychosocial intervention and referral, health care administration, and professional development and responsibilities. Students are given opportunities to gain the knowledge and skills needed to pass the certification exam of the National Athletic Trainers Association Board of Certification (NATABOC). Required courses are HPKD 2294, 3290, 3291, 3294, 3400, 3401, 4292, 4400, and 4401.

Admission: Students who have completed all of the Health Fitness/Athletic Training Major Option prerequisites may apply for the upper-division of the program. Students are admitted to the major for the fall semester only and admission is competitive. Admission decisions are made by a committee within the Department of Health Promotion and Kinesiology. Selection into the program is competitive and satisfaction of the minimum requirements does not guarantee admission. After evaluating the credentials of all applicants meeting the minimum academic requirements, the selection committee offers admission to students whose credentials demonstrate the highest level of academic achievement.

The Athletic Training Educational Program is a rigorous and intense program that places specific requirements and demands on the students enrolled in the program. The technical standards set forth by the Athletic Training Educational Program establish the essential qualities considered necessary for students admitted to this program to achieve the knowledge, skills, and competencies of an entry-level athletic trainer, as well as meet the expectations of the program's accrediting agency. These standards may be found in the Athletic Training Educational Program Handbook located in the Department of Health Promotion and Kinesiology.

Students applying for admission to the Health Fitness/Athletic Training Major Option must meet the following minimum academic requirements.

*Cumulative GPA of 2.0 or better in all college course work.
*Completion of 60 hours
*Successful completion (grade of C or better) in all prerequisites for health fitness/athletic training: BIOL 1273, BIOL 1273L, BIOL 1274, BIOL 1274L, CHEM 1203, CHEM 1203L, CHEM 1204, CHEM 1204L, PHIL 2101, CSCI 1101, STAT 1222, PSYC 1101, COMM 1101, COMM 2105, MATH 1100, HPKD 2101, HPKD 2150, HPKD 2290, and HPKD 2291.
*Proof of current adult CPR certification.
*Completion of all athletic training major option prerequisites prior to the fall for which application is being made.

MINOR IN INTERDISCIPLINARY HEALTH STUDIES

The minor in Interdisciplinary Health Studies consists of 22 to 23 hours, including HPKD 2101, HPKD 4299, PHIL 3228, 4 hours of biology (BIOL 1273 with lab or BIOL 3273 with lab), and 12 hours from any of the following: ANTH 2141; PSYC 2160; NURS/GRNT 3100; GRNT 2100; HIST 2141; POLS 3125; ANTH 3122; and SOCY 4130.

University Honors Program

Coordinator: Professor Albert A. Maisto

The purpose of the University Honors curriculum is to provide intellectual excitement for students, to fill some of the gaps created through traditional disciplinary learning, to encourage concerned, globally-aware citizenship and to provide a unique social and intellectual mix for both students and faculty. Interdisciplinary courses offered fit within the theme, *"Issues for Human Survival in the 21st Century,"* and are designed to confront political, religious, economic, ecological, gender, race, justice, and human rights related issues and their impact on the global community and the human condition. In every case, courses include a strong humanities component with special emphasis on historical perspectives and creative literary and artistic works. The program consists of four facets:

1. A four-course core: HONR 1701, HONR 1702, HONR 3701 and HONR 3702
2. Two credit hours of HONR 2701, Enrichment Seminar
3. A 40 clock-hour community service laboratory: HONR 2750
4. Senior project: HONR 3790

Honors sections of ENGL 1103 (Accelerated College Writing and Rhetoric) are offered during the fall semester to orient Freshmen to the philosophy and rigors of the Honors Program. In addition, courses across a wide variety of disciplines, including Business, Architecture, Literature and Psychology, are offered to University Honors students on a demand basis and may be substituted for two of the four core courses.

University Honors courses are often team taught by faculty members from different disciplines and classes have limited enrollment in order for students to develop their creative talents to the fullest extent possible. To this end, University Honors students are encouraged to live in the Honors residence, the third floor of Poplar Hall, which provides an environment conducive to study and learning. In order to facilitate learning, the "commons" area of this floor contains a well-equipped computer room for student use and a study/classroom facility. University Honors promotes both community service and enrichment experiences from a broad spectrum.

The Honors Program, in cooperation with the Education Abroad Program, also promotes a comprehensive study abroad program, emphasizing diversity, choice, and flexibility. Opportunities vary from an eight-day trip to various countries, to full academic years spent abroad, with all experiences designed to provide international education opportunities and perspectives. Some study abroad opportunities are interwoven with specially designed honors classes, while others are combined with the community service aspect of the program. Although study abroad is not required, it is strongly encouraged.

Admission. The University Honors Program is open to any student at the University who applies to the Program expressing a desire to participate in the interdisciplinary studies. In order to graduate with University Honors, students must maintain a 3.0 GPA overall and a 3.2 GPA in University Honors courses. Consequently, we do not recommend the Program to students unless it is evident they are capable of and willing to maintain at least a *B* average. Additional information and details are available at the University Honors Office in 101 Macy Hall or call 704-687-4824.

Departmental Honors Programs

Involvement in Honors work at UNC Charlotte may take two principal forms. The University Honors Program is a broad-based program designed to give its students the more liberal education achieved through study of global interdisciplinary subjects normally falling outside traditional disciplines. Its goal is to prepare students with global awareness and concern about the issues for human survival in the 21st century. The program is a four-year sequence of study beginning with the freshman year but it can be completed in as little as two years.

Students with majors in certain departments may graduate with departmental Honors. All departmental programs require research and thesis or some form of senior project. Some also require additional coursework or activity.

Honors Certification: University Requirements. To qualify for graduation with Honors recognition in a specific program, a student is required to (a) have at least a 3.2 GPA for all Honors courses completed in the program; (b) complete an acceptable Honors thesis; (c) receive at least three hours of *A* for Honors thesis research; (d) be recommended by the program's Honors Committee for graduation with Honors; and (e) complete any additional requirements specified for the program.

International Studies

Director: Professor Chernotsky

International Studies is an interdisciplinary program offering both a major and a minor within the College of Arts and Sciences. It draws upon the faculty and courses of a number of departments and is structured to give students skills and knowledge to understand and analyze societies outside the United States in the context of the rapidly changing and increasingly interdependent world. By integrating courses on area studies and world affairs from a variety of departments, the program allows students interested in studying other cultures and societies to focus attention across traditional disciplinary boundaries. International Studies is of particular value to those with career objectives in government, law, journalism, teaching, business, trade or military service. It also serves those who will seek employment with international organizations such

as the United Nations or with non-governmental agencies with an international or cross-cultural focus. For information, see the International Studies section under the College of Arts and Sciences in this *Catalog*.

OFFICE OF INTERNATIONAL PROGRAMS (OIP)

The Office of International Programs offers academic and cultural programs to enhance the learning environment of the University community.

OFFICE OF EDUCATION ABROAD

UNC Charlotte encourages its students to study or have an educational work experience in a foreign country as a part of their undergraduate careers. The Office of Education Abroad offers opportunities to study or work abroad for a year, a semester or a summer. Programs are available in countries virtually all over the world. A semester or year abroad need not cost much more than a semester or year at UNC Charlotte. Students may receive academic credit for all courses taken while overseas and intern or co-op credit for educational work experiences abroad. No time need be lost toward graduating on schedule. Study abroad may satisfy up to six semester hours of GOAL VI (X) of the General Education requirements. Knowledge of a foreign language is not required to study or work abroad. UNC Charlotte has sent students in architecture, education, business, arts and sciences, engineering, education, and nursing on its education abroad programs.

Students are encouraged to begin planning for study or work abroad while they are freshmen or sophomores. The study abroad experience may take place during the sophomore, junior, or senior year. Regular UNC Charlotte financial aid is often applicable to study abroad and scholarships are available.

The Office of Education Abroad assists students in choosing and applying for the education abroad program. It also provides cross-cultural orientation and re-entry (to the United States) assistance.

INTERNATIONAL STUDENT EXCHANGE PROGRAM (ISEP)

UNC Charlotte is one of approximately 200 U.S. institutions of higher education which are members of the International Student Exchange Program (ISEP). This program allows the UNC Charlotte student to exchange with students from Africa, Asia, Australia, Canada, Europe, and Latin America. The students pay their regular tuition, fees, room and board at UNC Charlotte and exchange places for the year with students from institutions outside the United States who have similarly covered their costs. The student is registered at the foreign institution, taking the same courses, having the same assignments and participating in the same activities as all other students at that institution. This program permits the student to be exposed daily to a different set of cultural values, to new ideas and new world views. ISEP exchanges are small in scale, with only a few students going to each foreign institution.

Further information about the Education Abroad or International Student Exchange programs may be obtained from the Office of Education Abroad.

ENGLISH LANGUAGE TRAINING INSTITUTE

The English Language Training Institute (ELTI) provides intensive English as a Second Language instruction for international students planning to attend American universities or colleges in the United States. ELTI holds three sessions per year--fall, spring, and summer--and offers seven language proficiency levels. Average class size is 12 and students attend classes 20-24 hours per week. Exceptional students in Levels 6 and 7 are eligible to take University courses in addition to their English classes. ELTI also offers a communications course for international teaching assistants and consulting for international faculty at UNC Charlotte. For more information about the ELTI, contact the Program Director in the Office of International Programs.

ROTC Programs

To prepare themselves to serve as commissioned officers in the Air Force or Army, students may participate in the Air Force Reserve Officers' Training Corps (ROTC) offered by the Department of Aerospace Studies or in the Army Reserve Officers' Training Corps (ROTC) offered by the Military Science Area.

Aerospace Studies

Chairman: *Professor (Mil.)*: Scotland; *Assistant Professors (Mil.)*: Martin, Traversa

Aerospace Studies prepares students for leadership positions with the United States Air Force through the **Pre-professional Program** and offers courses to all students through the **Academic Program**. The curriculum examines multi-disciplinary issues as they relate to leadership participation in the military environment.

ACADEMIC PROGRAM

The academic program (without affiliation with the formal Air Force ROTC program) is designed for students interested in gaining a perspective on military leadership, management, ethics, and discipline. Students who pursue this concentration should take the upper-level (AERO 3100 and 3200) courses, and they may attend the lower-level courses. Participation in Leadership Laboratory courses is available by special permission from the Department.

Pre-professional Program/Air Force ROTC Program. The pre-professional track of the Aerospace Studies program is implemented as the Air Force Reserve Officer Training Corps. It provides three programs for students to qualify for a commission as a second lieutenant in the Air Force. To be eligible for the Air Force ROTC pre-professional program, a student must be a citizen of the United States, physically qualified for commission in the Air Force, not under 14 years of age and, upon graduation, no more than 30 years of age. For those with prior military

service, commissioning must occur not later than age 35. If designated for flight training, the student must be able to complete all commissioning requirements prior to age 29½.

Cadets must pursue work leading to at least a bachelor's degree and be willing to sign a formal agreement at the beginning of the advanced course or upon initiation of a college scholarship. The agreement, an enlistment into the Air Force Reserve, obligates the student to remain in the ROTC program, accept a commission and serve the required period in the Air Force upon graduation. Cadets must also demonstrate proficiency or successfully complete courses in mathematical reasoning and English composition before commissioning.

Four-Year Program. This program begins with the General Military Course (GMC) and offers coursework within the lower-division. GMC students not on Air Force ROTC scholarship incur no military obligation. Each candidate for commissioning must pass each GMC course with a grade of *C* or better and pass the corequisite lab. Students must score appropriately on an Air Force aptitude test, pass a physical fitness test, pass a medical examination, and be selected by a board of Air Force officers. If selected, the student then enrolls in the Professional Officer Course (POC), the last two years of the Air Force ROTC curriculum. Students attend a four-week field training course at an Air Force base normally between the sophomore and junior years. All students in the POC receive a tax-free stipend of at least $200 per month. Upon successful completion of the POC and the requirements for a degree, the student is commissioned in the Air Force as a second lieutenant.

Two-Year Program. The basic requirement for entry into the two-year program is that the student has two academic years of college work remaining, either at the undergraduate or graduate level, or a combination of both. Applicants seeking enrollment in the two-year program must pass Air Force aptitude, physical fitness, and medical examinations and be selected by a board of Air Force officers. After successfully completing a five-week field training course at an Air Force base, the applicant may enroll in the Professional Officer Course (POC). Upon completion of the POC and the college requirements for a degree, the student is commissioned as a second lieutenant. All students in the two-year program receive a tax-free stipend of at least $200 per month.

One-Year Program. This program is designed for students entering their senior year or graduate school. Specific details for this program are announced annually. Cadets in the one-year program complete the Professional Officer Corps (POC) in approximately 15 months, which includes a 7-week field training encampment. Students normally attend the encampment prior to entering the program. Eligible students receive Air Force ROTC scholarship benefits of tuition, payments of fees and books, and a tax-free stipend of at least $200 per month.

SCHOLARSHIP PROGRAMS

Air Force ROTC awards scholarships at the freshman through graduate school levels for students in the pre-professional track leading to a commission in the Air Force. They are available to qualified cadets in the one-year, two-year, and four-year programs. Scholarships are given and retained on a semester basis.

Full-time enrollment in the University or a consortium institution and the Aerospace Studies program is a requirement for scholarship eligibility. Scholarships cover full tuition, fees, and a book allowance. Scholarship cadets also receive a tax-free stipend of at least $200 a month.

Four-year scholarships also are available to high school students. High school students interested in applying should contact the Unit Admissions Officer within the Department. Initial four-year scholarship packages must be postmarked by December 1 of the year prior to enrollment.

ADJUNCT PROGRAMS

Field Training. Field Training courses are normally completed during the summer between the sophomore and junior years. One covers a four-week period for students in the four-year program; the other lasts five weeks and is designed for two-year program applicants. Students in the one-year program normally complete a seven-week session during the summer prior to entering the program. Transportation, lodging, meals, and approximately $150 per week are provided by the Air Force during Field Training.

Leadership Laboratory. Those students pursuing the pre-professional track will participate a minimum of one hour per week during every semester of enrollment. The objective is to provide a laboratory environment where each student receives an opportunity to learn and develop leadership and management abilities. Cadets plan, organize and carry out the entire leadership laboratory program with only minimal guidance from the staff advisors.

Professional Development Program. Students enrolled in the freshman or junior year of Air Force ROTC may volunteer to attend a two- or three-week orientation program at an Air Force base. This is an opportunity to observe and experience the working environment of an active Air Force facility and to obtain specific career information. Other programs available to students include glider flight orientation, military airborne jump training, foreign language immersion, and summer engineering projects. Transportation, lodging, meals, and approximately $200 per week are provided by the Air Force during participation in this voluntary program.

Flight Training. Cadets designated to enter Air Force Undergraduate Pilot Training after graduation may participate in Initial Flight Training during their junior or senior year, at no expense to the student. This training also includes ground school instruction. Additionally, any cadet may apply to participate in an eight-hour flight orientation program any time during enrollment in AFROTC.

Military Science Area (ROTC)

Professor (Mil.): Kingsberry; Assistant Professor (Mil.): Powell

Participation in Army ROTC enhances the education of both men and women by providing unique leadership and management training, along with practical experience in

these areas. It helps students develop many of the qualities basic to success in the Army, or in civilian careers. Students earn a college degree and an officer's commission at the same time. The program is designed to complement the student's major area of study; participation in Army ROTC is compatible with all major areas of study. The Basic Course and the Advanced Course comprise the Military Science curriculum.

BASIC COURSE

The Basic Course is usually taken during the freshman and sophomore years. It is open to all students and incurs no military obligation. Topics include management principles, leadership development, national defense organization, land navigation, small unit tactics, survival techniques, military courtesy, and physical training. Uniforms and textbooks are provided at no cost to students. Students unable to attend the Basic Course may still qualify for the Advanced Course by attending a paid five-week summer camp following their sophomore year. Placement credit is also available for veterans, members of the reserve components, and Junior ROTC participants.

ADVANCED COURSE

The Advanced Course provides instruction in military history, advanced tactics, techniques of effective leadership, and military ethics and professionalism. It is normally taken during the junior and senior years. Students successfully completing the Basic Course, who have demonstrated the potential to become officers and meet Army physical and academic standards, are eligible to enroll in the Advanced Course. Students receive a tax-free stipend of $200 per academic month and are required to attend a paid six-week summer camp at Fort Lewis, Washington, between their junior and senior years. In addition to Military Science courses, students must complete HIST 2120 American Military History. Nursing students may enter the Advanced Course without Basic Course credit.

Nursing Summer Camp. Nursing students enrolled in the Advanced Course attend a two-part summer camp between the junior and senior years. This consists of five weeks Advanced Camp of basic military and leadership skills training at Fort Lewis, Washington, followed by three weeks of practical nursing training. The nurse intern training may be at Fort Lewis, Washington or any other major Army Medical Center nationwide.

SCHOLARSHIP PROGRAM

Two- and three-year scholarships are awarded on a competitive basis, providing full tuition and educational fees, a specified amount for books and supplies, and a tax-free stipend of $200 per academic month. Students do not have to be enrolled in Army ROTC to apply and incur no obligation by applying. Application timeframe is December to February each year. Special consideration is given to students in nursing, engineering and physical sciences. Four-year scholarships are available to students who apply while in high school or prior to enrollment.

COMMISSION REQUIREMENTS

To obtain a commission in the Army, Army National Guard or Army Reserve, a student must successfully complete the Advanced Course, be recommended by the Professor of Military Science, and complete work leading to at least a baccalaureate degree.

Experiential Learning Programs

Opportunities are available for both undergraduate and graduate students to receive course credit or other recognition for supervised experiences in public and private agencies within the community, nationally, and internationally. These opportunities are offered through experiential learning programs including over 300 courses involving clinicals, cooperative education, internships, and practica. The University Career Center coordinates most experiential learning opportunities for the campus and can provide information about the following options:

Cooperative Education: This career related professional program is available to students in the Colleges of Arts and Sciences, Business Administration, Information Technology, and Engineering. Participants must have a GPA of at least 2.5 and complete course requirements specified by their department. Transfer students must complete 12 hours at UNC Charlotte before applying to the program. Co-op students work two to three semesters either part-time or full-time (depending on college requirements) with an employer in a paid work experience. Although the experience does not offer academic credit, participants are classified as full-time students. Approximately 71% of co-op students obtain employment before graduation.

Internships: Internship programs provide an introduction to career options in a professionally related work experience. This experience is usually unpaid and may offer academic credit if there is appropriate faculty supervision. Students work between 8 to 12 hours a week while also taking classes.

The 49ership Program: The University Career Center sponsors a non-credit internship called a 49ership. Program participation is especially valuable for students who want career experience and do not have an internship option through their academic major. Students may apply for the program after their freshman year provided they have a GPA of 2.0 or better; graduate students must complete 9 credit hours in their graduate program before making application. (Transfer students must successfully complete 12 credit hours at UNC Charlotte before making application.) Participating employers have included Carolinas Medical Center, the District Attorney's Office, General Electric, Walt Disney World, Duke Energy, Vanguard, Transamerica, and US Airways. Seventy-five percent (75%) of the positions in this program are compensated.

The Career Prospector Program: This program involves "shadowing" professionals in various career fields. Students are able to explore career options and academic interests by conducting informational interviews and observing professionals in the career fields of their choice. The shadowing experiences can last for one day or longer,

depending on the schedules of the students and sponsors. *Over 150 sponsors in various career fields participate in this program coordinated through the University Career Center.*

Preparation for Professional Schools

Students may begin preparation at UNC Charlotte for a number of professional careers. Depending upon the professional school's requirements, the student may wish to take a degree at UNC Charlotte or to transfer after one, two or three years.

Preparation for the following programs is offered: chemical engineering, dentistry, forest resources, law, medical technology, medicine, optometry, pharmacy, and veterinary medicine.

The student who plans to enter a professional school is advised to plan his/her program so that general requirements for the bachelor of arts or bachelor of science degree are met in addition to the requirements for the professional program being considered. The student planning to attend a professional school should inform his/her advisor of his/her plans. The student should become familiar with the requirements of the school that he/she plans to attend.

Chemical Engineering. Students seeking a program in chemical engineering should consult the Department of Chemistry for advice concerning available options. However, those students desiring to obtain the Bachelor of Science in Chemical Engineering degree may do so by transferring to North Carolina State University after spending two years at UNC Charlotte. To be eligible for such transfer, the student must meet the admissions requirements for transfer at North Carolina State University. After transfer, an additional two years normally will be required for the degree.

The following courses are ones that most closely resemble courses suggested for chemical engineering students at North Carolina State University.

First Year

Chemistry 1251, 1251L, 1252, 1252L
Engineering 1100
English 1101 and 1102
Mathematics 1241, 1242
Physics 2101,2101L
Mechanical Engineering 1102
Physical Education (two semesters)
* Elective (one semester)

Second Year

Chemistry 2131, 2131L, 2132, 2132L
Electrical Engineering 2161, 2162
Mathematics 2171, 2241
Physical Education (two semesters)
Physics 2102, 2102L
* Electives (two semesters)

**A one-semester course in each of the following areas is required before graduation from North Carolina State University: economics, English literature, history, or philosophy of science.*

Dentistry and Medicine. The composite requirements for entrance to most medical and dental schools in North Carolina, South Carolina, Georgia, Tennessee, and Virginia are as follows:

Biology	8 hours
General Chemistry	8 hours
Organic Chemistry	8 hours
(Some schools require additional chemistry)	
Physics	8 hours
English	6 hours

Students should check specific requirements of schools of interest.

Please note that these are the published minimum requirements to apply. Most students will need additional coursework and other activities to be competitive for admission. It is essential that students intending to apply to medical or dental schools consult a premed/predent advisor very early in their programs.

Pre-Medical, Preprofessional Committee. The UNC Charlotte Preprofessional Committee consists of faculty members from throughout the University and serves as the main advisory and recommending body for UNC Charlotte students seeking entrance to health professional careers. In order to obtain a recommendation to medical school or dental school from the committee, the student must register with the committee in the Biology office by September of the year in which applications are being made.

Contact the Office of Academic Affairs for the name of the committee chairperson. Students working toward entrance to health professional schools are advised to work closely with the Premedical Advisors in the Biology and Chemistry Departments throughout their study at UNC Charlotte.

Allied Health Club. Students interested in health related careers are encouraged to join the Allied Health Club. The organization sponsors speakers, volunteer opportunities in local hospitals, and trips to see admissions officers and teaching programs in schools throughout the region.

Law. The University suggests that the student planning to enter law school consider courses in such areas as accounting, business administration, business law, communications, criminal justice, debating, drama, economics, English literature and composition, finance, history, logic and ethics, mathematics, modern languages, philosophy, political science, psychology, sociology, and statistics. Preparation should include comprehension of and expression in words, the development of a critical understanding of human institutions and values, the generation of a creative power in thinking, and a working knowledge of the use of the computer in modern society. Thus, any of a number of majors, with wisely selected electives, might provide the broad educational background needed.

Law Society. The UNC Charlotte Law Society is a student pre-law organization. The Society carries on a large number of activities designed to help its members decide whether they wish to attend law school: providing sessions with pre-law advisors and attorneys; taking field trips to pre-law conferences, law schools, law offices and courts; having a guest speaker program on legal and judicial topics; and working on preparations for the LSAT. Membership in the Society is open to all UNCC students, regardless of major or year at the University. For more information, contact the Department of Political Science.

Medical Technology. The University, through affiliation with several schools of medical technology, offers programs leading to baccalaureate degrees in Biology and chemistry, with training in medical technology. Students interested in this four-year program are advised to check the more detailed listing under the individual departments and to consult with the appropriate advisor in the Department of Biology or Chemistry.

Optometry. There are no schools of optometry in North Carolina. Each year, however, the State of North Carolina contracts 24 spaces in out-of-state schools of optometry and partially subsidizes the tuition costs for the students that it selects to attend these schools. Information on these contract programs in Optometry may be obtained from the Office of the President of The University of North Carolina.

For admission, the contract schools require programs similar to the one given here, consisting of at least 90 semester hours of coursework. *Science courses should include appropriate laboratories*:

English 1101 and 1102
Mathematics 1103, 1241, 1242, Statistics 1221
Biology 1110 and 1115 or 1233 and 2111, 1259+L or 4250+L, or 4250+L
Chemistry 1251+L and 1252+L, 2131+L and 2132+L
Physics 1101+L and 1102+L
Psychology 1101
Social Science: 2 courses

Advising for students interested in pre-optometry preparation is available in the Departments of Biology, Chemistry, and Physics.

Pharmacy. Students planning to seek a Bachelor of Science in Pharmacy degree may spend either one or two years at UNC Charlotte. One year is recommended for students transferring to a four-year pharmacy school; two years are recommended for students transferring to a three-year pharmacy school such as The University of North Carolina at Chapel Hill.

The following courses are equivalent to those required for transfer into the pharmacy school at UNC-Chapel Hill:
English 1101 and 1102
Mathematics 1120
Foreign Language: through 2201
Biology 1110 or 1233, and 1273+L, 1274+L
Chemistry 1251+L, 1252+L, 2131+L, 2132+L
Physics 1101 and 1102

Students who will not receive a bachelor's degree from UNC Charlotte must select one course from each of the following groups for a total of four courses:

Group 1: English 2101, 2102, 2104, 2111, 2112; Theatre 1101; Music 1132
Group 2: Religion 1101; Philosophy 2101
Group 3: Economics 1201
Group 4: History 1120, 3101, 3102

Physical Education: Two semesters of physical education activities are required.

Veterinary Medicine. The following UNC Charlotte courses meet the requirements for admission to the School of Veterinary Medicine at North Carolina State University.

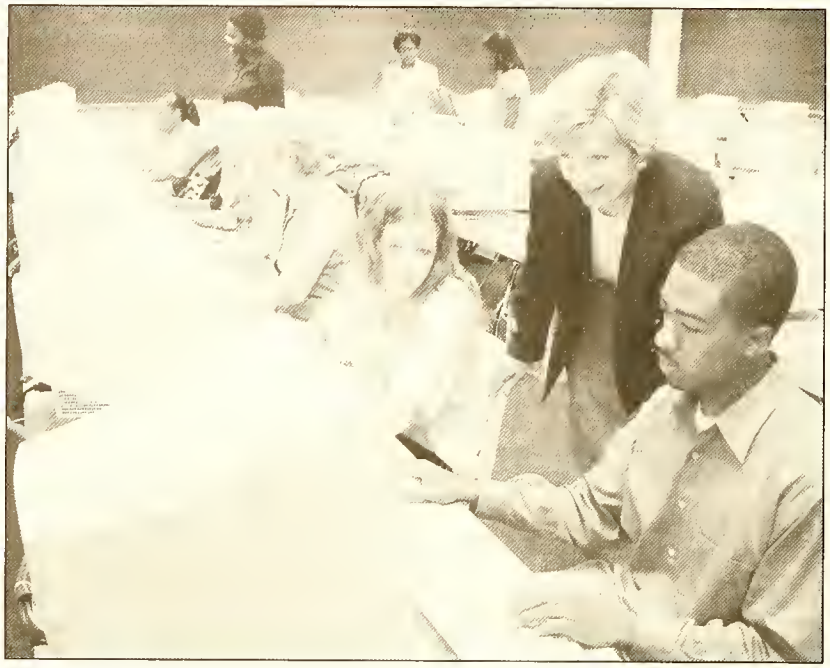
Students should consult with a Pre-Vet Advisor in the Biology or Chemistry Department.

ENGL 1101, 1102 6
MATH 1103, 1120 or 1241 6
STAT 1221 3
PHYS 1101+L, 1102+L 8
*BIOL 3166+L, 4250+L 8
*BIOL 1233+L, BIOL 2111+L 8
CHEM 1251+L, 1252+L, 2131+L, 2132+L 16

All but two of these courses must be completed by the end of the Fall semester in which a student applies for admission to the School of Veterinary Medicine.

*Nonbiology majors should consult a Pre-Vet Advisor in the Biology Department for information on the introductory biology courses required

**UNC Charlotte has no courses that satisfy the Animal Science/Nutrition requirement. Students should contact the Veterinary School Admissions Office at NC State University for information on summer or correspondence courses.



COURSE DESCRIPTIONS

Course Descriptions. Course descriptions provide the following information: subject prefix; course number; course title; semester credit hours assigned to the course; any of the Goals of UNC Charlotte General Education that the course satisfies (**A**= Arts, **C**=Individual, Society and Culture, **L**=Literature, **O**= Oral Communication; **P**=Problem-solving, **S**=Science and Technology, **V**=Values, **W**=Writing Intensive, **X**=Cross-Cultural); prerequisites and/or corequisites (if any); brief description of the course content; and when the course usually is offered (Evenings, Yearly, Alternate years, Fall, Spring, Summer, On demand). The description may specify the number of class (lecture) and/or laboratory sessions and hours. If no class hours are given, the number of class hours per week is the same as the number of semester hours credit assigned to the course. For example:

SUBJ 1234. Title of Course. (Goals Met) (Credit Hours) Pre/corequisites. Brief description of course content. (Three lecture hours and one three-hour laboratory per week) (When offered)

Course Numbering System. Courses are identified by four-digit numbers. The first digit indicates the level of the course: **1000-2999:** lower-division undergraduate; **3000-4999:** upper-division undergraduate. The following second digits designate special types of courses: **0** for topics; **4** for internships and practicum, **5** for cooperative education, **6** for seminars, **7** for Honors courses, **8** for independent study, and **9** for research.

Course Prefix. Courses offered for academic credit are listed by number within each subject and the **subjects are listed alphabetically according to prefixes** which are assigned as follows:

Subject	Prefix
African-American and African Studies	AAAS
Accounting	ACCT
Aerospace Studies	AERO
American Studies	AMST
Anthropology	ANTH
Architecture	ARCH
Arts and Sciences	ARSC
Art: Academic and Departmental	ARTA
Art: Basic Foundation Studios	ARTB
Art: Ceramics	ARTC
Art: Drawing	ARTD
Art: Education	ARTE
Art: Fiber	ARTF
Art: Graphic Design	ARTG
Art: Illustration	ARTL
Art: Multi-Media	ARTM
Art: Painting:	ARTP
Art: Printmaking	ARTR
Art: Time Arts/Photography	ARTT
Art: Sculpture	ARTZ
Biology	BIOL
Business Law	BLAW
Business Honors	BUSN
Civil Engineering	CEGR
Chemistry	CHEM
Child and Family Development	CHFD
Chinese	CHNS
Criminal Justice	CJUS
Communication Studies	COMM
Dance	DANC
Dance and Theatre	DATH
Electrical and Computer Engineering	ECGR
Economics	ECON
Education	EDUC
Education Instructional Systems Technology	EIST
Elementary Education	ELED
English	ENGL
Engineering	ENGR
Earth Sciences	ESCI
Civil Engineering Technology	ETCE
Electrical Engineering Technology	ETEE
Fire Safety Engineering Technology	ETFS
Engineering Technology	ETGR
Industrial Engineering Technology	ETIN
Mechanical Engineering Technology	ETME
Manufacturing Engineering Technology	ETMF
Finance	FINN
Languages and Culture Studies	FORL
French	FREN
Geography	GEOG
Geology	GEOL
German	GERM
Greek	GREK
Gerontology	GRNT
History	HIST
University Honors	HONR
Health Promotion and Kinesiology	HPKD
Management Information Systems	INFO
International Studies	INTL
Computer Science	ITCS
Software and Information Systems	ITIS
Italian	ITLN
Japanese	JAPN
Journalism	JOUR
Latin	LATN
Mathematics Education	MAED
Mathematics	MATH
Middle Grades Education	MDLG
Middle, Secondary, and K-12 Education	MDSK
Mechanical Engineering	MEGR
Management	MGMT
Marketing	MKTG
Military Science	MSCI
Museum Studies	MSTS
Music	MUSC
Nursing: R.N.	NURN
Nursing	NURS
Operations Management	OPER
Operations Research	OPRS
Philosophy	PHIL
Physics	PHYS
Political Science	POLS
Portuguese	PORT
Psychology	PSYC
Reading	READ
Religious Studies	RELS
Russian	RUSS
Secondary Education	SECD
Sociology	SOCY
Social Work	SOWK
Spanish	SPAN
Special Education	SPED
Statistics	STAT
Theatre	THEA
Translating	TRAN
Women's Studies	WMST

AFRICAN-AMERICAN AND AFRICAN STUDIES (AAAS)

AAAS 1100. Introduction to African-American and African Studies. (3) (X) A multicultural focus on contemporary societies that include black people and the methodology, key issues and themes in African-American and African Studies. Readings on the experiences of black people in their interaction with other cultures in Africa, America, and Europe. (*Fall, Spring*)

AAAS 1103. The African Experience I. (3) Introductory survey of the history and culture of African peoples within the context of pre-colonial, colonial, and independent Africa. Focus on unique social, political, economic processes, and problems in Africa. In-depth study of outstanding African leaders as representatives of their societies. (*Fall*)

AAAS 1104. The African Experience II. (3) Exploration of contemporary issues in Africa and their impact on African-Americans and other Africans in the diaspora. Impact of European colonization on Africa, including topics such as revolutionary and reform-oriented political movements, racism, imperialism, nationalism, urbanization, and Pan-Africanism. (*Spring*)

AAAS 1111. The African-American Experience Through Reconstruction. (3) African-American experience in America through Reconstruction. Topics include: system of slavery; free blacks in north and south; compromises with the peculiar institution; and impact of the civil war and reconstruction on the freedom, citizenship, and suffrage of African-Americans. (*Fall*)

AAAS 1112. The African-American Experience: Reconstruction Through the Present. (3) Prerequisites: AAAS 1100 and 1111 for majors and AAAS 1100 or 1111 for non-majors. An interdisciplinary survey of key issues, debates, and personalities in the African-American experience from 1865 to the present. *(Spring)*

AAAS 2105. Black Images in the Media. (3) Examination of African-American images projected through electronic and print media, historically and currently. Cross-listed with COMM 2120. (*Yearly*)

AAAS 2106. Literary Analysis of Black Protest of the 1960s (3) Selected African-American literary works examined as outgrowths of the 1960s protest movement. Poetry, drama, and nonfiction of period studied. (*Spring*)

AAAS 2201. Introduction to Human Relations. (3) (C) Prerequisite: AAAS 1100. Understanding of self and others in a pluralistic society; analysis of theories of personal growth and interaction within the context of differing multi-ethnic values, mores and contributions. (*Fall, Spring*)

AAAS 2203. African-American Culture I. (3) Focus on the aesthetic dimensions of African-American culture through examination of aspects of literature, music, drama, art, and dance. (*Fall*)

AAAS 2204. African-American Culture II. (3) Study of Black culture as manifested in social, political, economic, and religious institutions through directed field work, lectures and research. (*Spring*)

AAAS 2205. African Culture I. (3) Survey of lifestyles in Africa with emphasis on the patterns of social behavior and communal organization that link and relate to the African-American experience and heritage. Research required. (*Fall*)

AAAS 2206. African Literature, Music, and Art. (3) (W,A) Survey of African cultures through literature, music, drama, oral history, and art with emphasis on the cultural undertones that link and relate the African-American experience and heritage. Creative research or community projects required. (*Spring*)

AAAS 2207. Introduction to Pan-Africanism. (3) Interdisciplinary study of Pan-Africanism. Examination of historical and contemporary efforts of peoples of African descent to unite their struggles for human advancement and equality in the United States, Latin America, Western Europe, and Africa, including critical review of popular movements, leading proponents, and the significant organizational manifestations of Pan-Africanism. (*Alternate years*)

AAAS 2208. Education and African-Americans. (3) Examination of the problems and challenges of educating African-Americans. Topics include: conceptual approaches to education; historical and contemporary overview of education for African-Americans; the impact of race and discrimination; analysis of existing curricula; and suggested models for a multi-racial and multi-cultural education. (*Fall*)

AAAS 2215. Black Families in the United States. (3) (W) Critical and comprehensive examination of the life of African-American families in the United States including the historical evolution of black families and their relationship with the political-economic structures of American society. (*Yearly*)

AAAS 2221. Introduction to Contemporary Africa. (3) Study of Africa from 1960 to the present. Focus on political, economic, and social changes and Africa's integration into the community of nations. (*Fall*)

AAAS 2301. Introduction to African-American Literature. (3) (L) Prerequisite: ENGL 1101 and 1102 or 1103, or departmental permission. Survey of the major periods, texts, and issues in African-American Literature. Prerequisite to 4000 level African-American literature courses in English Department. Cross-listed as ENGL 2301. *(Fall, Spring)*

AAAS 3050. Topics in African-American and African Studies. (3) Treatment of a special topic. May be repeated for credit as topics vary, with approval of the Chairperson. (*Fall, Spring*)

AAAS 3101. Values in Racial Perspectives. (3) (V,X) Study of values and make-up of American pluralistic society in historical and contemporary context. Focus on understanding of African-American values vis-a-vis those of majority society. (*Spring*)

AAAS 3150. Black Church/Civil Rights Movement. (3) (V,X) Role of the black church in the struggle for human equality. Topics include radical, moderate, and accommodationist leadership styles; historical development of the black church in the South; and its emergence as a foundation for the modern civil rights movement. **(Same as RELS 3150)** (*Fall*)

AAAS 3179. African-American Political Philosophy. (3) Prerequisite: 3000 level course on Africa from AAAS, POLS, or HIST. Analysis of competing ideologies in African-American political philosophy. **(Same as POLS 3172)** (*On demand*)

AAAS 3190. The Political Economy of the Caribbean. (3) An examination of the manifestations of Caribbean economic problems and policies and Caribbean political development from the post-war period to the present. (*Fall*)

AAAS 3230. Poverty and Discrimination. (3) Economic roots of poverty and discrimination and the impact of anti-poverty and anti-discrimination laws on Black America. (*Spring*)

AAAS 3250. Political Economy of Black America. (3) Examines the problems and the issues influencing the development of the black economic base in the United States and its role in the American economy. (*Fall*)

AAAS 3265. African Economic Development. (3) Focus on economic theories, planning, production, and resource allocation strategies, capital formation, foreign aid, and multinational corporations in Africa. (*Yearly*)

AAAS 3290. Research Methods. (3) (O) Prerequisite: completion of sophomore-year courses or instructor's permission. Design of a research project with emphasis on developing sound research skills and methods. (*Fall, Spring*)

AAAS 3601. Senior Seminar. (3) Prerequisite: completion of junior-year courses. Corequisite: AAAS 3990. Reading, discussion, reports. Peer critique of conceptualization, methodology and research of Senior Project. May be repeated for credit with consent of Advisory Committee. (*Fall, Spring*)

AAAS 3692. Colloquium. (3) (W) Prerequisite: consent of the instructor. A weekly colloquium; research and writing; opportunity for intellectual stimulation, critique and problem solving. Open to majors and non-majors. (*Fall, Spring*)

AAAS 3895. Independent Study. (1-3) Prerequisite: consent of the Department. Supervised investigation of a problem or subject in the area of African-American and African Studies. Majors only. May be repeated for credit. (*Fall, Spring*)

AAAS 3990. Senior Project. (2-15) Prerequisite: completion of junior-year courses. Corequisite: AAAS 3601. The writing of a senior research paper or work on a community-related project. Emphasis on mastery of skills and content of the discipline. (May be repeated twice for credit with instructor's consent.) (*Fall, Spring*)

AAAS 4101. Modern African Literature in English. (3) Prerequisite: junior standing; AAAS 1100 or 2206 for AAAS majors. Topics included: traditional African and Western literary influences, the culture debate, post-independence satire, decolonization of African literature, apartheid, and women writers. *(On demand)*

AAAS 4102. Caribbean Literature in English. (3) Prerequisite: junior standing; at least one course in AAAS for AAAS majors. Topics include: loneliness, quest for identity, nationalism, protest, and the use of patois. *(On demand)*

AAAS 4103. Warfare, the Military, and Civil Wars in Africa. (3) Prerequisite: 3000 or above course on Africa. Nature and conduct of warfare in ancient and modern times in Africa, including technology and strategy; analysis of events and institutions using military means such as civil wars, liberation and secession movements, the army, and their impact on African societies. (*On demand*)

AAAS 4105. Foreign Policy of African States. (3) Prerequisite: upper-evel course on Africa. A theoretical approach to the study of the external and internal factors influencing the development, implementation, and conduct of foreign policy of African States. **(Same As POLS 3169)** (*Spring*)

AAAS 4106. Gender and African-American Literature. (3) (3G) Prerequisites: ENGL 2100 and 2301, or permission of instructor or graduate status. Exploration of the intersection of gender and African-American Literature, focusing on either Black women writers or Black male writers, or a combination in dialogue. Cross-listed as ENGL 4156. *(Alternate years)*

AAAS 4107. African-American Poetry. (3) (3G) Prerequisites: ENGL 2100 and 2301, or permission of instructor or graduate status. Intensive study of African-American poetry, focusing on one period or traversing several. Cross-listed as ENGL 4157. *(Alternate years)*

AAAS 4108. African-American Literary Theory and Criticism. (3) (3G) Prerequisites: ENGL 2100 and 2301, or permission of instructor or graduate status. History of an African-American approach to literary analysis, including a practicum in modern criticism. Cross-listed as AAAS 4158. *(Alternate years)*

ACCOUNTING (ACCT)

ACCT 2121. Principles of Accounting I. (3) Prerequisite: sophomore standing or consent of Department. Fundamental accounting principles, with emphasis on the use of financial accounting data and analysis of financial statements. *(Fall, Spring, Summer) (Evenings)*

ACCT 2122. Principles of Accounting II. (3) Prerequisite: ACCT 2121 and sophomore standing or consent of Department. An introduction to managerial accounting with an emphasis on using accounting information to make decisions. *(Fall, Spring, Summer) (Evenings)*

ACCT 3043. Current Developments in Accounting. (1-3) May be repeated for credit. Prerequisite: consent of the Department. A research project will be required. Topics will be selected from internal and external auditing, governmental accounting, income taxes, managerial accounting and accounting theory. *(Fall, Spring, Summer) (Evenings)*

ACCT 3111. Intermediate Financial Accounting I. (3) Prerequisites: grades of *C* or better in both ACCT 2122 and INFO 2130. Analysis of the requirements of outsiders (investors, auditors, and governments) for information about the status and operations of firms. The application of various theories and concepts will be stressed. Enrollment limited to majors in the College of Business Administration. Three lecture hours, two lab hours. (*Fall, Summer*)

ACCT 3112. Intermediate Financial Accounting II. (3) Prerequisite: ACCT 3111 with a grade of *C* or better. A continuation of ACCT 3111 with emphasis on reporting standards and procedures for corporations. Three lectures hours, two lab hours. Enrollment limited to Accounting Majors. (*Spring, Summer*)

ACCT 3113. Intermediate Financial Accounting III. (3) Prerequisite: ACCT 3112 with a grade of *C* or better. A continuation of ACCT 3112 with emphasis on reporting standards and procedures for corporations. Three lectures hours, two lab hours. Enrollment limited to Accounting Majors. (*Fall)*

ACCT 3121. Internal Auditing I. (3) Prerequisites: ACCT 2122 and consent of instructor. Introduction to internal auditing standards, ethics, audit evidence and techniques, and reporting practices and demonstration of these concepts through case studies. Enrollment limited to majors in the College of Business Administration. *(Spring)*

ACCT 3122. Internal Auditing II. (3) Prerequisites: ACCT 3121. Internal auditing management, quantitative techniques used by internal auditors, operational auditing, fraud and EDP auditing including demonstration of these techniques through the use of case studies and reports. Enrollment limited to majors in the College of Business Administration. *(Fall)*

ACCT 3136. Managerial Cost Accounting. (3) Prerequisite: ACCT 2122. Analysis of the uses of accounting data in the planning, controlling and decision-making processes of business enterprises. Enrollment limited to majors in the College of Business Administration. *(Fall, Spring, Summer) (Evenings)*

ACCT 3140. Accounting Information Systems. (3) Prerequisites: ACCT 2122 and INFO 2130. An introduction to accounting EDP systems, with particular emphasis on internal controls and computer auditing techniques. Three lecture hours, two lab hours. Enrollment limited to majors in the College of Business Administration. *(Fall, Spring) (Evenings)*

ACCT 3148. Auditing and Other Assurance Services. **(3)** Prerequisites: ACCT 3112 (with a grade of *C* or better) and ACCT 3140. Analysis of the accounting control systems and the independent auditor's examination of the system and other evidence as a basis for expressing an opinion on financial statements. Three lecture hours, two lab hours. Enrollment limited to Accounting Majors. (*Fall, Spring*) *(Evenings)*

ACCT 3150. International Accounting. (3) Prerequisites: ACCT 2121 and 2122 and junior standing. A study of accounting techniques worldwide and how different techniques affect multi-national firms and day to day international business practices. *(On Demand)*

ACCT 3200. Foundations of Accounting. (3) Accelerated and in-depth study of conceptual foundations and applications of financial reporting. (Accounting preparation to enter MBA. May not be taken for credit toward any undergraduate degree within the Belk College of Business Administration or used as equivalent credit for ACCT 2121-2122). *(Fall, Spring)(Evenings)*

ACCT 3211. Introduction to Income Tax. (3) Prerequisites: ACCT 3112 with a grade of *C* or better. An introduction to the Federal income tax system with emphasis on concepts and procedures applicable to all types of entities. Enrollment limited to Accounting Majors. (*Fall)*

ACCT 3500. Cooperative Education Experience. (0) Prerequisite: Accounting major with Department approval. Enrollment is required for the Department's cooperative education students during each semester they are working in a co-op position. Course evaluation is Satisfactory/ Unsatisfactory grading. *(Fall, Spring, Summer)*

ACCT 4111. Advanced Financial Accounting. (3) Prerequisite: ACCT 3113 with a grade of *C* or better. Advanced concepts and practices in financial reporting with special emphasis on business combinations and consolidated financial statements. *(Spring)*

ACCT 4112. Financial Reporting for Not for Profit Entities. (3) Prerequisite: ACCT 3113 with a grade of *C* or better. An exploration of the financial reporting issues and practices for governmental and other not-for-profit entities. (*Fall)*

ACCT 4230. Advanced Income Tax. (3) Prerequisite: ACCT 3211 or equivalent course with a grade of *C* or better. An examination of advanced tax topics regarding corporations, partnerships, and individuals. In addition, estate and gift, fiduciary accounting, tax-exempt entities, and retirement plans will be examined at an introductory level. *(Spring)*

AEROSPACE STUDIES (AERO)

AERO 1101. The Air Force Today. (1) Pre-professional corequisite: AERO 1101L. Survey of topics relating to the Air Force including officership, professionalism, and basic communicative skills. (*Fall*)

AERO 1101L. The Air Force Today. (0) Leadership Lab. (*Fall*)

AERO 1102. The Air Force Today. (1) Pre-professional corequisite: AERO 1102L. A continuation of AERO 1101 to include a study of organizational structure and missions of

the Air Force, life on an active duty base, and the relation of other armed service components to the Air Force mission. (*Spring*)

AERO 1102L. The Air Force Today. (O) Leadership Lab. (*Spring*)

AERO 2101. Development of Air Power I. (1) Pre-professional corequisite: AERO 2101L. Examination of the development of air power from its beginnings through the Cold War emphasizing the evolution of air power concepts and doctrine. An assessment of communication skills is included. (*Fall*)

AERO 2101L. Development of Air Power I. (O) Leadership Lab. (*Fall*)

AERO 2102. Development of Air Power II. (1) Pre-professional corequisite: AERO 2102L. A continuation of AERO 2101 which examines the history of airpower from Vietnam to the present. Oral communication development is a critical element. (*Spring*)

AERO 2102L. Development of Air Power II. (O) Leadership Lab. (*Spring*)

AERO 3101. Leadership and Management. (3) Pre-professional corequisite: AERO 3101L. Study of leadership theory and skills, and the Air Force officer's role as a leader. Includes a study of management skills and their value in the military environment. Emphasis is placed on written and oral communication. (*Fall*)

AERO 3101L. Leadership and Management. (O) Leadership Lab. (*Fall*)

AERO 3102. Defense Administration and Military Management. (3) Pre-professional corequisite: AERO 3102L. Examination of Air Force doctrine, leadership, and ethics. Emphasis is placed on written and oral communication. (*Spring*)

AERO 3102L. Defense Administration and Military Management. (O) Leadership Lab. (*Spring*)

AERO 3201. National Security Issues in Contemporary American Society. (3) Pre-professional corequisite: AERO 3201L. The executive-legislative matrix of our national government is developed and compared with other governmental systems. Special emphasis on the role of the emerging military leader in implementing national policy decisions, civilian control of the military, and regional security issues. (*Fall*)

AERO 3201L. National Security Issues in Contemporary American Society. (O) Leadership Lab. (*Fall*)

AERO 3202. The Defense Leader: Perspectives on Ethics and Justice. (3) (V) Pre-professional corequisite: AERO 3202L. Continued development of the fundamentals presented in AERO 3201 with special emphasis on the military as a profession and officership. Selected ethical and military justice scenarios are presented and discussed to prepare the student with an adequate intellectual framework for action as a professional military officer. (*Spring*)

AERO 3202L. The Defense Leader: Perspectives on Ethics and Justice. (O) Leadership Lab. (*Spring*)

AMERICAN STUDIES (AMST)

AMST 2100. Introduction to American Indian Studies. (3) (X) An introduction to the study of the American Indian experience through selected academic disciplines (e.g. anthropology, history, political science, religious studies) and American Indian intellectual perspectives on, and response to, these disciplines. (*Fall*)

AMST 3000. Inhabiting Places. (3) Introduction to the interdisciplinary approach, demonstrating how traditionally distinct disciplines, such as literature and history, or art and political science, interrelate and contribute to an understanding of an American topic. May be repeated for credit with permission of the student's advisor. (*Yearly*)

AMST 3100. Introduction to American Studies. (L,C) (3) Introduction to American culture through an in-depth study of a single decade or era, such as the 1830s, 1890s, 1920s, 1950s or 1960s. Focus on how diverse social, economic, artistic, literary, philosophical, and political forces have shaped American society. Students examine the complex and multifaceted nature of American culture, both as it pertains to the specific era under study and to the present day. (*Fall, Spring*)

AMST 3210. Childhood in America. (3) (C) Exploration of the changing nature of childhood in American society. Examines how social and economic developments have affected the child's position in the family, the workplace, and the school. Child-rearing philosophies and techniques from the colonial period to the present and the history of children's literature, toys, and entertainment will be studied. (*Fall*) (*Alternate years*)

AMST 3800. Independent Study or Directed Reading in American Studies. (3) May be repeated once for credit, with permission of the student's advisor. (Not limited to American Studies students but should be under the supervision of an American Studies advisor or designate.) (*On demand*)

ANTHROPOLOGY (ANTH)

ANTH 1101. Introduction to Anthropology. (3) (V,X) Biological and cultural evolution; archeology; language and culture; comparative study of human social institutions such as kinship, subsistence patterns, religion, politics; methods, and theories. Prerequisite for all upper-level courses in anthropology. (*Fall, Spring, Summer*) (*Evenings*)

ANTH 2010. Topics in Ethnography. (3) Investigation of ethnographic regions of the world. May be repeated for credit as topics vary. Examples: Cultures of the Pacific; Cultures of the Mediterranean. (*On demand*)

ANTH 2050. Topics in Archeology. (3) Specialized topics in archeology. May be repeated for credit as topics vary. Examples: Historic Archeology; Old World Prehistory. (*On demand*)

ANTH 2090. Topics in Anthropology. (1-3) Specialized topics in anthropology. May be repeated for credit as topics vary. Examples: Hunters and Gatherers; Political Anthropology. *(On demand)*

ANTH 2111. Peoples of Africa. (3) Ethnic and linguistic diversity in Sub-Saharan Africa; ecology and culture; patterns of continuity and change in kinship, marriage, economy, social control, stratification, and religion. (*On demand*)

ANTH 2112. North American Indians. (3) Survey of the native peoples of America; culture at the time of European contact; major historical events and relationships; contemporary issues in Indian affairs. (*Yearly*)

ANTH 2114. Indians of the Southeastern United States. (3) (X) Study of American Indians of the Southeastern United States with emphasis on tribes of the Carolinas. Areas of investigation include pre-contact cultures, Indian-European contact relationships, history, and contemporary Southeastern Indian issues. (*Alternate years*)

ANTH 2115. Culture and Society in the Middle East. (3) Patterns of subsistence, social and political organization in North Africa and the Middle East. Changes in family and community structures, migration, gender roles, and religious outlook since the colonial period. *(Alternate years)*

ANTH 2116. Contemporary Latin America. (3) (W,X) Prerequisite: None. A survey of the people and cultures of Mexico, Central America, South America, and the Caribbean. Areas of investigation include religion, race, ethnicity, gender, kinship, social inequality, and economic development. *(Alternate years)*

ANTH 2121. Comparative Family Systems. (3) (W,X) Cross-cultural survey of the origins and forms of the human family and interrelationships with other cultural institutions; role of the family in kinship, marriage, childrearing, sex roles, economics, political organization, and religion. (*Alternate years*)

ANTH 2122. Beliefs, Symbols and Rituals. (3) Structure and content of systems of belief and ritual; role in social life; analysis of religion, myth, magic, witchcraft, symbol systems, cult movements, and religious change. (*Yearly*)

ANTH 2123. Women in Cross Cultural Perspective (3) A cross-cultural survey of the lives of women and the dynamics of gender throughout the world. Uses anthropological research to examine how gender influences evolution, social stratification, work, kinship, and perceptions of the body. *(Alternate years)*

ANTH 2125. Urban Anthropology. (3) Cross-cultural analysis of urban life; rise of early cities; rural-urban differences; migration; ethnicity, urban poverty; effects of urban life on kinship systems; modernization. (*On demand*)

ANTH 2141. Principles of Biological Anthropology. (4) (S) Evolutionary theory; primates; primate and human evolution; population genetics; human variation, disease, nutrition; osteology. Three lecture hours and two lab hours each week. (*Fall, Spring*)

ANTH 2142. Primate Behavior. (3) Primate evolution, taxonomy, social behavior, ecology, reproductive strategies; monkeys, apes and human beings; communication, aggression, mother-infant bonding, sociobiology; field-work, conservation. (*Yearly*)

ANTH 2151. General Archaeology. (3) Archaeological method and theory; important archaeological sites and cultures from Old and New Worlds; ethics and public policy in archeology. (*Fall*)

ANTH 2152. New World Archaeology. (3) Prehistory of North America; Paleoindians, Eastern United States, Southwest, Mexico; archeological methods and theory. (*Spring*)

ANTH 3090. Topics in Anthropology. (1-3) Prerequisite: ANTH 1101 or consent of the instructor. Examination of specialized topics in anthropology. May be repeated for credit as topics vary. Examples: Nutritional Anthropology; Gender and Anthropology. *(On demand)*

ANTH 3101. Foundations of Anthropological Theory. (3) Prerequisites: ANTH 1101 and junior standing. History of anthropological theory; the anthropological perspective in the social sciences; current theoretical and methodological issues in anthropology; presenting anthropology through writing and speaking. *(Fall)*

ANTH 3111. Culture Change and Applied Anthropology. (3) Prerequisite: ANTH 1101 or consent of instructor. Cultural dynamics; agents and conditions promoting change; theory and methods of applied anthropology in health care, education, development, business. (*On demand*)

ANTH 3112. Anthropology and Art. (3) (X,A) Prerequisite: ANTH 1101 or consent of instructor. Cross-cultural investigation of various forms of artistic expression throughout the world and how they function in terms of values and cultural context. Includes hands-on experiences in different art forms. (*Yearly*)

ANTH 3122. Culture, Health and Disease. (3) (W,X) Prerequisite: ANTH 1101 or consent of the Department. Relationship between cultural beliefs and practices and patterns of health and illness in human populations; role of disease in ecology and epidemiology, nutrition, cultural systems of healing, roles of patient and healer, culture and emotional states, role of religion, and magic in healing. (*Yearly*)

ANTH 3124. Food, Nutrition and Culture. (3) Prerequisite: ANTH 1101 or permission of instructor. An examination of how food provides special insight into cultures throughout the world. Topics include the symbolic and social value of food, the social construction of taste, dietary change, food and health, alcohol use, cannibalism, and famine. *(Yearly)*

ANTH 3132. Aging and Culture. (3) (W,X) Examination of the processes of aging in various cultural contexts, with emphasis on the implications for understanding aging within American society. Application of anthropological theories and methods to the study of aging. *(Yearly)*

ANTH 3140. Forensic Anthropology. (3) Comparative human anatomy and biological anthropology applied to modern problems in the identification of human remains. Recovery, identification, and interpretation of human remains from archaeological, criminal, and disaster investigations. *(On demand)*

ANTH 3152. Early Civilizations. (3) Prerequisite: ANTH 1101 or 2151 or consent of instructor. Great civilizations of Old and New Worlds; Mesopotamia, India, Greece, Africa, Egypt, China, Mexico, Peru; theories of cultural evolution; beginnings of complex societies; archeological theory and method, environment, and ecology of first civilizations. (*Alternate years*)

ANTH 3153. Archaeological Analysis. (3) Prerequisite: ANTH 2151 or consent of the instructor. Advanced study of archaeological method and theory; analytical methods; statistics in archeology. (*On demand)*

ANTH 3154. European Prehistory. (3) Prerequisite: ANTH 1101 or 2151 or consent of the instructor. Prehistory of Europe; Paleolithic, Neolithic, Bronze Age, Iron Age; archeological methods and theory; ecology and social systems of early European cultures. (*Alternate years*)

ANTH 3453. Field Projects in Archaeology. (1-4) Prerequisite: ANTH 1101 or 2151 and consent of the instructor. (Credit hours will be established by instructor prior to the field project.) Practical experience in archaeological techniques. Students will participate in field research on an historic or prehistoric archeological site. Research may include field reconnaissance, excavation, mapping, systematic description and analysis of cultural material, and/or other techniques appropriate to the site and research problem. May be repeated for credit as projects vary. Up to eight hours of credit may be applied toward the anthropology major. (*Summer*)

ANTH 3480. Internship in Anthropology. (3) Prerequisite: consent of the Department. Research and/or in-service training experience in a cooperating community organization. Contents of internship based upon a contractual agreement among the student, Department, and community organization. May be repeated for credit up to a maximum of six semester hours. *(Pass/No Credit basis) (Fall, Spring, Summer*)

ANTH 3482. Teaching Internship in Anthropology. (3) Prerequisite: at least junior standing and permission of the Department. Teaching assistant experience in introductory anthropology. Includes conducting review sessions, lecturing, assisting faculty member with exams, and related activities. May be repeated for credit up to six hours. *(Honors/Pass/No credit) (Fall, Spring)*

ANTH 3895. Directed Individual Study. (1-4) Prerequisite: ANTH 1101 and consent of the Department. Supervised investigation of specialized topics in anthropology. May be repeated for credit: up to six hours may be applied to the major. (*Fall, Spring, Summer*)

ANTH 4090. Topics in Anthropology. (1-3) Prerequisite: ANTH 1101 or consent of instructor. Examination of specialized topics in anthropology. May be repeated for credit as topics vary. Examples: Human Ecological Systems, Women and Culture, Primitive Arts and Crafts. (*On demand*)

ANTH 4110. American Ethnic Cultures. (3) (X) Prerequisite: ANTH 1101 or consent of instructor. An anthropological and ethnohistorical survey of ethnicity, persistence and cultures of the ethnic groups of America. Topics include theories of ethnicity, immigration, ethnic identity, reasons for immigration, acculturation experiences, and cultural characteristics of established and more recent ethnic groups. (*On demand*)

ANTH 4120. Intercultural Communications. (3) Prerequisite: ANTH 1101 or consent of instructor. Learning to cope with cultural differences; contrasting value systems; cross-cultural and communication styles; nonverbal communication; cultural relativity; culture and perception; ethnocentricism; cultural shock. (*Yearly*)

ANTH 4140. Primatological Field Observation. (4) Prerequisite: consent of instructor. Practical experience in techniques of observation of animal behavior with a focus on the primates. Training in methods of hypothesis formulation, observation, record-keeping and data analysis. Research on captive and free ranging animals. Analysis of the behavioral characteristics of prosimians, monkeys, and apes. (*Summer*)

ANTH 4601. Seminar in General Anthropology. (W,O) (3) Prerequisite: ANTH 3101 and senior standing. For majors only. Synthesis and integration of subfields of anthropology with emphasis on accomplishing original research, and written and oral presentation in anthropology. (O credit will be received only after successful completion of 3101 and 3601) *(Spring)*

ARCHITECTURE (ARCH)

Studio and Seminar Courses

ARCH 1100. History of American Architecture. (A)(3) Prerequisite: No major in Architecture. American architecture from ca.1600 to the present with a focus on the cultural and environmental forces shaping American architecture. *(Fall)*

ARCH 1101. Architecture Design Studio 1. (5) The Architecture Design Studio 1 begins the architectural design sequence. The studio allows students to gain a working knowledge of important studio skills, processes and methods, and develop creative and independent thinking through two- and three-dimensional design problems.

ARCH 1102. Architecture Design Studio 2. (5) The Architecture Design Studio 2 continues the architectural design studio sequence, expanding the base of architectural skills, processes, methods, principles, and issues which affect the built environment we inhabit. Design is introduced as a conceptual discipline involving analysis, interpretation, syntheses, and transformation of the physical environment.

ARCH 1601. Recording Observations. (2) Projects, lectures, demonstrations, and exercises are used to introduce the skill of freehand drawing. The aim is to understand

drawing as a vital means to see, represent, and understand essential aspects of the visual environment.

ARCH 1602. Components of Form. (2) Projects, lectures, demonstrations, and exercises are used to introduce the skill of freehand drawing. The aim is to understand drawing as a vital means to see, represent, and understand essential aspects of the visual environment.

ARCH 2101. Architecture Design. (3) 11 contact hours. Prerequisites: ARCH 1102 and 1602. Corequisite: ARCH 2601. Studios emphasizing the significant purposes for building; understanding the theoretical, technical and symbolic consideration of the environment relative to intervention, and intentions from behavioral information toward a comprehensive design process. (*Fall*)

ARCH 2102. Architectural Design Studio. (4) 11 contact hours. Prerequisites: ARCH 2101 and 2601. Studios concentrating on the development, experimentation, and understanding of the range, potential, materials, systems, and methods in the use of architectural technologies. (*Spring*)

ARCH 2601. Architectural Seminar. (W) (3) Prerequisites: ARCH 1602 and 1102. Corequisite: ARCH 2101. This seminar introduces models of design process to build judgmental capacity in the areas of function, spatial organization, culture, and landscape. Site planning is presented both as a technical demand and a formal device. Lectures, demonstrations, and design workshops are used to build skill. (*Fall*)

ARCH 3101. Architecture Design Studio. (5) 9 contact hours. Prerequisites: ARCH 2102. Third year design studios continue the five-year studio sequence with a focus on three areas of inquiry: *tectonics* - defined as the material, detail, and structure as form-generating influences; *enclosure* - defined as making space with regard to use and human ritual; and *envelope* - defined as building edge and surface in technical terms and signification. (*Fall*)

ARCH 3102. Architecture Design Studio. (6) 9 contact hours. Prerequisite: ARCH 3101. Continuation of ARCH 3101. The final studio in the Core Program examines the relationship of building to site and context in both environmental and social terms. Site planning, adjacency, contextualism, land and landscape, building grouping, and urban occupancy are included in projects. (*Spring*)

ARCH 4050. Architecture Elective - Topics (3) (3G) Concentrated, in-depth study of selected topic. Topics vary according to faculty expertise and often include contemporary theoretical, social, technological, and design issues. *(Fall, Spring, Summer)*

ARCH 4101. Topical Architectural Studio. (5) 9 contact hours. Prerequisite: ARCH 3102. Various studio topics are offered with different emphasis and subject concentration to allow students to in-depth studio experiences in particular areas of study. (*Fall*)

ARCH 4102. Topical Architectural Studio. (5) 9 contact hours. Prerequisite: ARCH 4101. Series of studio sections offered with different emphasis and subject concentration to allow students to obtain a variety of studio experiences and pursue an individual area of study. (*Spring*)

ARCH 4103. Project Document. (6) Completion of a Project Document which provides for design research, analysis, development and synthesis (oral, written, and graphics) of a building program, site, and design premise. *(Fall)*

ARCH 4104. Thesis Studio. (6) Completion of a Comprehensive Architectural Project design including oral and visual presentation of design development, final project design, and refinement of Project Document. (See ARCH 4103) *(Spring)*

ARCH 4112. Architectural Practice. (3) Co-requisite: ARCH 4104. Learning objectives include an understanding of the practice of architecture today, its responsibilities and procedures, and emerging alternative forms of practice and roles of the architect. *(Spring)*

ARCH 4211. Architectural History I. (A) (3) Study of the theoretical, technical, and cultural background of architecture and urban design from prehistory to 1750. *(Fall)*

ARCH 4212. Architectural History 2. (3) Study of the theoretical, technical, and cultural background of architecture and urban design from 1750 to present. *(Spring)*

ARCH 4213. History/Theory Elective. (3) Prerequisite: ARCH 4212 or permission of instructor. Study of topical areas of history and theory of architecture. These courses are required for architecture majors (6 credit hours) to complement the required survey courses (ARCH 4211 and 4212) to develop in-depth research, writing, and presentation skills. *(Fall)*

ARCH 4214. History/Theory Elective. (3) Prerequisite: ARCH 4213, or permission of instructor. Study of topical areas of history and theory of architecture. These courses are required for architecture majors (6 credit hours) to complement the required survey courses (ARCH 4211 and 4212) to develop in-depth research, writing, and presentation skills. *(Spring)*

ARCH 4312. Architectural Materials. (3) Introduces quantitative and qualitative characteristics and physical properties of architectural materials, systems, details and processes. Topics include masonry, concrete, wood, steel, glazing, cladding, roofing and flooring materials, and assemblies. *(Spring)*

ARCH 4313. Structures One. (3) Introduces: 1) the fundamentals of structures including statics, strength and stability of materials, 2) structural concepts, systems, and the tracing of structural loads using basic principles, physical modeling, and theoretical and analytical methods, 3) the interrelationship between strain, stress, and stability, and the implications of tension, compression, shear, torsion, and bending. *(Fall)*

ARCH 4314. Structures Two. (3) This course introduces specific structural applications of wood, steel, concrete, and masonry systems commonly used in small-scale commercial/institutional buildings. Students will be introduced to the design of beams, columns, walls, joinery, and connections appropriate to each material type through

theoretical, analytical, and computer simulation methods. *(Spring)*

ARCH 4315. Environmental Control Systems. (3) Introduces: 1) qualitative and quantitative methods to assess the impact of environmental forces on thermal and luminous comfort, energy performance, and regional sustainability; 2) the interplay between climatic events, building use, and the variables that influence building systems technology; and 3) building envelope performance, and passive and mechanical systems for heating, cooling, illuminating, and ventilating. *(Fall)*

ARCH 4317. Building Systems Integration. (3) Introduces advanced issues related to the comprehensive integration of building technology systems commonly used in large-scale buildings including large-scale building structures, materials, environmental, mechanical, electrical, life safety, building water supply and waste, and conveying systems through case study, analytical, and simulation methods. *(Fall)*

ARCH 4890. Directed Independent Study. (1-3) Prerequisite: major in Architecture. This course is designed to allow students to pursue faculty-directed independent study topics not provided by other College offerings. May be repeated for credit with the approval of the College. May not be taken in conjunction with ARCH 4103 and ARCH 4104 without permission from Chair of Instruction. (*Fall, Spring)*

ARTS AND SCIENCES (ARSC)

ARSC 1000. Freshman Seminar. (3) Designed to assist with the intellectual and social transition from high school to college by developing positive attitudes toward learning and increasing the involvement of students in the intellectual life of the campus; providing an orientation to resources available to students; and promoting problem solving and writing skills. Each section will be developed around a content theme, usually selected from the instructor's discipline. (*Fall, Spring*)

ARSC 1101. "Advantage: Connecting with College." (3) (W) is a summer program for college freshmen. During this program, students take two courses and earn six credit hours. The morning course is an elective chosen from a list of specially selected Department courses. The afternoon is ARSC 1101, Connecting with College. All sections work from a common syllabus. All Advantage courses, both the morning and afternoon courses, meet for the required number of 45 contact hours. *(Summer)*

ARSC 2000. University Learning Seminar. (1-3) Prerequisite: Consent of the College of Arts and Science. Provides instruction in basic computer literacy, critical thinking skills, reading comprehension, written and oral communication skills. Each section will be developed around a content theme selected from instructor's discipline. Designed for transfer students in making intellectual and social transition to the University learning environment. Students who have previously taken ARSC 1000 may not receive credit for this course. *(Fall, Spring)*

ARSC 3000. Topics in Arts and Sciences. (3) Prerequisites: junior standing and consent of the sponsoring departments. Topics chosen from the general area of the arts and sciences in order to demonstrate relationships and interdisciplinary influences. May be repeated for credit as topics vary with consent of the student's major Department. Can be used toward general degree requirements as indicated each time the course is offered. (*On demand*)

ARSC 3400. Non-Residential Studies. (1-15) Experience outside the University which provides an alternative learning opportunity to broaden understanding of the major and provide an introduction to various careers. All arrangements for non-residential study must be approved in advance and include a written proposal of goals, methods, duration, hours credit, and evaluation procedures. The University Career Center is available to assist students to locate appropriate work experiences. Student projects will be approved, supervised, and evaluated within the student's major Department. Grading by a faculty advisor may be on a *Pass/No Credit basis*, ordinarily to be taken in the Junior or Senior year. No more than 15 hours of non-residential studies may be presented toward a degree. (Cannot be used toward general degree requirements.) Contact major Department or University Career Center for information. (*On demand*)

ARSC 3480. Citizenship and Service Practicum. (3) (W,V) An interdisciplinary, experiential learning course which examines the relationship between citizenship and service to one's community. Lectures, reading, and seminars explore the historical, ethical, and political foundations of voluntary service for issues such as poverty, homelessness, and social justice. Course meets for two hours of lecture/discussion per week and requires completion of 40 hours of voluntary service in the community. *(Fall, Spring)*

ARSC 3500. Cooperative Education Experience. (0) Prerequisites: Departmental GPA and credit hours required and approval by the Co-op Coordinator. Enrollment in this course is required for Arts and Sciences students involved in professional work experiences offered through either the parallel (part-time work) or the alternating (full-time work) option of the cooperative education program. Students on co-op assignments pay a special fee and receive full-time student status. Assignments must be arranged and approved in advance. For information, contact the University Career Center. *(Fall, Spring, Summer)*

ART

Course offerings are listed by number within area of study.

Academic and Departmental Art

ARTA 1111. Art Appreciation. (3) (A) Introduction to the appreciation of art through slide lectures concerning a brief chronological history of art, the elements of design, and general concepts of art. For non-majors only. *(Fall, Spring, Summer)*

ARTA 1211. Art History Survey I. (3) (A). Survey of Western and Near Eastern Art from prehistoric times to 1400 A. D. with special emphasis upon the interrelationship of the

visual arts and other cultural developments. Discussions of readings, lectures, slides and video tapes. Essay exams. *(Fall)*

ARTA 1212. Art History Survey II. (3) (A). Survey of Renaissance, Baroque and Modern Art from A. D. 1400 to the present, with special emphasis upon the interrelationship of the visual arts and other cultural developments. Discussions of readings, lectures, slides and video tapes. Essay exams. *(Spring).*

ARTA 2112. Asian Art. (3) (A,X) Survey of Indic, Chinese, and Japanese art with special emphasis upon the art as the illustration of religious, philosophical, and political ideals. Discussions of readings, lectures, slides, and video tapes. Essay exams. *(Fall)*

ARTA 2113. Native Art. (3) (A,X) Survey of Pre-Columbian and Native American art, Africa, and Oceania with special emphasis upon the art as the illustration of religious, philosophical, and political ideals. Discussion of readings, lectures, slides, and video tapes. Essay exams. *(Spring)*

ARTA 2212. Art History Methods. (3) Prerequisite: ARTA 1211 and 1212, or consent of instructor. Survey of primary methodologies, theories and research in the history of art and art criticism, including formalism; iconography; connoisseurship; biography; social history; Marxism; feminism; postmodern, and contemporary theory. *(Fall)*

ARTA 2219. History of Photography. (3) Survey of the major events and stylistic developments in photography from 1839 to the present.*(Spring) (Alternate years)*

ARTA 2800. Directed Studies in Art. (1-3) Prerequisite: consent of instructor. Directed individual research in a particular artistic field of interest not otherwise offered. May be repeated for credit. *(Fall, Spring, Summer)*

ARTA 3000. Topics in Art. (1-3) Special topic in art. May be repeated for credit with change in topic. *(On demand)*

ARTA 3001. Topics in Art History. (1-3) Special topics in art history. May be repeated for credit with change in topic. *(On demand)*

ARTA 3101. Art Writing. (3) (W) Prerequisite: consent of instructor for non-majors. Priority for Art and Architecture majors. Intensive writing experience in the forms of writing commonly employed in the visual arts: criticism, journalism, historical research, personal essay. *(Fall)*

ARTA 3111. Ancient Art. (3) Prerequisite: ARTA 1211. Survey of the arts and architecture of the ancient western world, from prehistoric times to the fall of the Roman empire. Special emphasis on the interactions of the religious and political systems within the arts as well as identification of cultural styles of art. Discussions of readings, lectures, slides and video tapes. Essay exams. *(Fall) (Alternate years)*

ARTA 3112. Pre-Columbian Art. (3) Prerequisite: ARTA 1211. Survey of the arts and architecture of the Americas before European contact in the 16th century. Special emphasis on the interactions of religion, social systems, and the arts as well as identification of ethnic styles of art. Discussions of readings, lectures, slides and video tapes. Essay exams. *(Fall) (Alternate years)*

ARTA 3113. Medieval Art. (3) Prerequisite: ARTA 1211. Survey of the major movements in Europe and the Near East from A.D. 324-1400 with special emphasis on the philosophical background and the interrelationships among the arts of each period. Discussions of readings, lectures, slides, and video tapes. Essay exams. *(Spring) (Alternate years)*

ARTA 3114. Renaissance and Baroque Art. (3) Prerequisite: ARTA 1212. Survey of the arts and architecture of Europe and the Colonial world from 1400-1775. Emphasizing the Renaissance philosophy of art, interactions of the Protestant Reformation and Counter Reformation, and the identification of national styles of art. Discussions of readings, lectures, slides, and video tapes. Essay exams. *(Spring) (Alternate years)*

ARTA 3117. Art in the US - 1600 - 1900. (3) Prerequisite: ARTA 1212 or consent of instructor. Survey of the major artists and movements in the United States from the Colonial period through 1900, including discussions of cultural contexts and philosophical backgrounds of major styles. *(Fall) (Alternate years)*

ARTA 3118. 19th C. Art in Europe. (3) Prerequisite: ARTA 1212 or consent of instructor. Survey of the major artists and movements in 19th century in Europe, including discussions of cultural contexts and philosophical backgrounds of major artists and styles. *(Fall) (Alternate years)*

ARTA 3119. Art in the US - 1900 - 1940. (3) Prerequisite: ARTA 1212 or consent of instructor. Survey of the major movements in the United States from 1900-1945, with special emphasis on the cultural and philosophical backgrounds of major artists and styles. *(Spring) (Alternate years)*

ARTA 3120. 20th C. Art in Europe. (3) Prerequisite: ARTA 1212 or consent of instructor. Survey of the major movements in 20th century modernist art in Europe from 1900-1945, with special emphasis on the cultural and philosophical backgrounds of major artists and styles. *(Spring) (Alternate years)*

ARTA 3211. Contemporary Art History. (3) Prerequisite: ARTA 1212 or consent of instructor. History of the visual arts after 1945 from aesthetic, visual and conceptual perspectives. Selected artists discussed in depth within the artistic and theoretical frameworks of modernism and Post-Modernism. Readings from Modern and contemporary theory. *(Spring)*

ARTA 3212. Contemporary Art Theory & Criticism. (3) Prerequisites: ARTA 1212 and 2212, or consent of instructor. Major ideas and writings which discuss and interpret the visual arts of the contemporary era; readings in theory and criticism from the postmodern and current periods. *(Spring) (Alternate years)*

ARTA 3400. Internship in the Arts. (1-3) Non-salaried opportunity for students to observe, examine, and participate in the creative dynamics and procedural operations of an art organization, arts related business, professional artist's studio, or expert craftsworker. Sponsor supervised. Six to twelve hours per week. Repeat for credit with different sponsors. *(Pass/No Credit grade evaluation) (Fall, Spring, Summer)*

ARTA 3402. Gallery Internship. (3) Participation in all phases of exhibition selection, preparation, and presentation in four campus galleries under supervision of campus galleries coordinator. An average of eight hours per week for a total of 120 hours. *(Fall, Spring)*

ARTA 3600. Senior Seminar. (3) (W,A) (O) Prerequisite: Art majors with senior standing. Seminar and intensive writing experience explores a variety of general issues in contemporary art with an emphasis on career questions faced by graduating seniors. *(Fall, Spring)*

ARTA 3800. Independent Study in Art. (1-3) Prerequisite: consent of instructor. Supervised individual research of artistic problems with appropriate documentation of the results. May be repeated for credit. *(Fall, Spring, Summer)*

ARTA 3801. Visual Arts Workshop. (1-6) Prerequisite: consent of instructor. Contracted and pre-approved arrangements for student to receive credit for visual arts workshops conducted outside the University's course offerings. May be repeated for credit. *(Fall, Spring, Summer)*

Basic Foundation Studios

ARTB 1201. 2D Design. (3) The two-dimensional surface and its structural possibilities (i.e., graphics, photography, painting); elements of plastic expression related to increased complexity of space and form. Priority for majors. Six hours. *(Fall, Spring)*

ARTB 1202. 3D Design. (3) A beginning studio emphasizing experimentation with design and materials as related to the exploration of form and space in three dimensions. Priority for majors. Six hours. *(Fall, Spring)*

ARTB 1203. Drawing I. (3) Introduction to drawing involving skills and theory including perspective, proportion, and rendering in a variety of media and techniques. Priority for majors. Six hours. *(Fall, Spring)*

ARTB 1205. Figure Drawing I. (3) Prerequisite: ARTB 1203 or consent of instructor. The figure as it relates to form, contour, and movement; an anatomical study emphasizing the relationships of skeletal and muscle organization and other referents in the development of graphic skills and vocabulary. Six hours. *(Fall, Spring)*

ARTB 1206. Concepts and Technology. (3) Theory and methods course designed to explore visual literacy using photography and electronic techniques. Six hours. *(Fall, Spring)*

Ceramics

ARTC 2175. Ceramics Handbuilding I. (3) Introduction to handbuilt forming methods, concept development, ceramic materials, and firing procedures. Six hours. *(Fall, Spring)*

ARTC 2176. Ceramics Wheel I. (3) Introduction to wheel forming methods and concepts involving skill development, glaze formulation, and basic high-fire techniques. Six hours. *(Fall, Spring)*

ARTC 2275. Ceramic Sculpture. (3) Introductory studio emphasizing larger scale sculptural techniques, concepts, and design in fired earthenware clays. Six hours. *(On demand)*

ARTC 2276. Ceramics Wheel II. (3) Prerequisites: ARTC 2176 or consent of instructor. Continuation of Arts 2176 emphasizing development of skills, materials, firing techniques, and concepts. Six hours. *(Fall, Spring)*

ARTC 3071. Topics in Ceramics. (1-3) Special topics in ceramics. May be repeated for credit with change in topic. *(On demand)*

ARTC 3175. Ceramics Studio III. (3) Prerequisite: ARTC 2175 or 2176 or consent of instructor. Intermediate development of skills and concepts. More advanced materials and firing techniques. Six hours. *(Fall, Spring)*

ARTC 3176. Ceramics Studio IV. (3) Prerequisite: ARTC 3175. Continuation of ARTS 3175. Six hours. *(Fall, Spring)*

ARTC 3275. Ceramics Studio V. (3) Prerequisite: ARTC 3176. Advanced ceramic studio of higher level skills, concepts, and aesthetics with particular emphasis on personal expression and development of an individual clay portfolio. Six hours. *(Fall, Spring)*

ARTC 3276. Ceramics Studio VI. (3) Prerequisite: ARTC 3271. Continuation of ARTS 3275. Six hours. *(Fall, Spring)*

Drawing

ARTD 2137. Figure Drawing II. (3) Prerequisite: ARTB 1205 or consent of instructor. Emphasizes complex problems and fully developed drawings in a variety of media. Six hours. *(Fall, Spring)*

ARTD 2139. Drawing II. (3) Prerequisite: ARTB 1203 or consent of instructor. Further development of perceptual skills with emphasis on conceptual issues; exploration of subject matter, meaning and content, and thematic development in a variety of black and white and color materials. Six hours. *(Spring)*

ARTD 3035. Topics in Drawing. (1-3) Special topics in drawing. May be repeated for credit with change in topic. *(On demand)*

ARTD 3136. Figure Drawing III. (3) Prerequisite: ARTD 2137 or consent of instructor. Explores humanist and formalist approaches to depicting the figure; multiple figures in environmental situations. Six hours. *(Spring)*

ARTD 3137. Figure Drawing IV. (3) Prerequisite: ARTD 3136 or consent of instructor. Advanced studio using the figure as subject matter. Six hours. *(Spring)*

ARTD 3138. Drawing III. (3) Prerequisites: ARTB 1205 and ARTD 2139, or consent of instructor. Drawing for expression and communication; further development of perceptual and conceptual skills with emphasis on defining an individual direction; mixed media, color, collage, non-traditional materials, and surfaces. Six hours. *(Fall)*

ARTD 3139. Drawing IV. (3) Prerequisites: ARTD 3138 or consent of instructor. Advanced studio with emphasis on development of individual direction. Six hours. *(Fall)*

Art Education

ARTE 2121. Developmental Art. (3) Human growth potential, creative and perceptual development, learning objectives, past and current philosophies, and psychology in art. Individual studio problems involving art elements, principles, and media. Six hours. For non-majors only. *(Fall, Spring, Summer)*

ARTE 3021. Topics in Art Education. (1-3) Special topics in art education. May be repeated for credit with change in topic. *(On demand)*

ARTE 3121. Art Education Methods I (K-12). (3) Prerequisite: 24 semester hours of studio art. Analysis of learning theories as related to growth and development in visual arts; organization of tools, media and materials; curriculum design in planning art units and lesson plans; evaluation and motivation techniques. Studio course. Six hours.*(Fall)*

ARTE 3122. Art Education Methods II (K-12). (3) Prerequisite: ARTE 3121. Development of objectives for art education based on personal and historical references, philosophy, and psychology. Relationship of the arts and artists to contemporary society. Curriculum design and classroom management. Six hours. *(Spring)*

ARTE 3467. Student Teaching in Art. (15) Prerequisite: ARTE 3122 and approved application for student teaching; senior status; completion of professional education requirements; grades of *C* or better in all courses required for licensure. Corequisite: enrollment only in student teaching. A planned sequence of experiences in the student's area of specialization conducted in an approved school setting under the supervision and coordination of a University supervisor and a cooperating teacher in which the student demonstrates the competencies identified for his/her specific teaching field in an appropriate grade level setting. *(Fall)*

Fiber

ARTF 2151. Fiber I. (3) Introduction to the field of fibers, with exploration in constructed fibers, garment forms, and surface design, including weaving, dying, printing, and three dimensional construction techniques. Six hours. *(Fall, Spring)*

ARTF 2251. Fiber II. (3) Prerequisite: ARTF 2151 or consent of instructor. Further level of exploration in fibers, which may include weaving, surface design, felting, papermaking. Six hours. *(Fall, Spring)*

ARTF 2255. Tapestry. (3) Prerequisite: ARTF 2151 or consent of instructor. Tapestry techniques concentrating on color and design. May be repeated for credit. Six hours. *(On demand)*

ARTF 2256. Rug Weaving. (3) Prerequisite: ARTF 2151. Technical study including warp-faced and weft-faced rugs, pile, and flat woven surfaces. May be repeated for credit. Six hours. *(On demand)*

ARTF 3051. Topics in Fiber. (1-3) Special Topics in fiber. May be repeated for credit with change in topic. *(On demand)*

ARTF 3151. Fiber III. (3) Prerequisite: ARTF 2251 or consent of instructor. Intermediate level exploration of fiber processes, including weaving, surface design, constructed fiber, garment forms. Six hours. *(Fall, Spring)*

ARTF 3152. Fiber IV. (3) Prerequisite: ARTF 3151 or consent of instructor. Continuation of development of skills and concepts in fiber, including weaving, surface design, constructed fiber, garment forms. Six hours. *(Fall, Spring)*

ARTF 3252. Fiber Projects I. (3) Prerequisite: ARTF 3152 or consent of instructor. Advanced level fiber techniques and concepts with emphasis on personal expression and development of individual fiber portfolio. Six hours. *(Fall, Spring)*

ARTF 3253. Fiber Projects II. (3) Prerequisite: ARTF 3252 or consent of instructor. Emphasis on portfolio development and professional practices specific to the fiber field. Six hours. *(Fall, Spring)*

Graphic Design

ARTG 2181. Graphic Design I. (3) Prerequisite: ARTB 1201 and 1203. Introduction to basic graphic design and visual communications principles and the history of design. Exploration of equipment, materials, techniques, and procedures. Emphasis on concept development and basic layout design skills. Six hours. *(Fall, Spring)*

ARTG 3081. Topics in Graphic Design. (1-3) Special topics in graphic design. May be repeated for credit with change in topic. *(On demand)*

ARTG 3181. Advertising Design. (3) Prerequisite: ARTG 3183. Advanced exploration of solutions to complex, integrated graphic design problems focusing on visual communications for advertising. Professional agency environment and client/business dynamics, design industry issues in contemporary society. Six hours. *(Fall)*

ARTG 3183. Mac for Graphic Design. (3) Prerequisites: ARTM 2105 and ARTG 2181. Hands-on production of pre-press art for graphic design usage. Six hours. *(Fall, Spring)*

ARTG 3281. Corporate Design. (3) Prerequisite: ARTG 3183. Advanced exploration of solutions to complex, integrated graphic design problems with focus on visual

communications for corporations. Professional design department environment emphasizes client/business dynamics, project research/development, and creative teams. Design industry contemporary society examined. Six hours. *(Spring)*

ARTG 3287. Exhibition Design. (3) Prerequisites: MSTS 2101 (for Museum Studies Minors), or ARTG 2181 (for Art Majors). Theory, interpretation, design, and fabrication of exhibitions for museums, galleries, and other cultural, corporate, educational, and public use. Six hours. (Same as MSTS 3203) *(Spring) (Alternate years)*

ARTG 3408. Graphic Design Internship. (3) Prerequisite: ARTS 3281. Placement in a professional setting for observation and supervised design-related duties. An average of ten hours per week for twelve weeks for a total of 120 hours. Written documentation of internship required. *(Pass/No Credit grade evaluation) (Fall, Spring, Summer)*

ARTG 3981. Design Project. (3) Prerequisites: ARTG 3181 and 3281. Independent studio course requiring strong design skills. Focus on initiation and implementation of an advanced level project solving a complex artistic problem. Public presentation of project and portfolio refinement required. Six hours. *(Fall, Spring)*

Illustration

ARTL 2186. Illustration I. (3) Prerequisite: ARTB 1205. Survey of the history of illustration and problems in a wide range of media with emphasis on the significant precedents and individuals responsible for shaping the field. Studio projects, demonstrations, and critiques contribute to visual literacy. Six hours. *(Fall, Spring)*

ARTL 3086. Topics in Illustration. (1-3) Special topics in illustration. May be repeated for credit with change in topic. *(On demand)*

ARTL 3186. Illustration: Media/Method. (3) Prerequisite: ARTL 2186. Tools and techniques of illustration including preliminary sketching, photography, library, and Internet research. Six hours. *(Fall)*

ARTL 3187. Children's Book Illustration. (3) Prerequisite: ARTL 2186. Survey of layout, research, storyboard, dummy, and finished artwork necessary to create a children's book for presentation to publishers. Come prepared with an idea for a children's book. Six hours. *(Fall) (Alternate years)*

ARTL 3188. The Figure in Illustration. (3) Prerequisites: ARTD 2137 and ARTL 2186. Examination of memory and research techniques to draw the figure in any position or environment. Emphasis on anatomy, form, composition, and costume. Six hours. *(Fall) (Alternate years)*

ARTL 3286. Illustration: Sequence/Story. (3) Prerequisite: ARTL 2186. Relationship between words and pictures. Development of a narrative pictorial approach in problems for a wide variety of markets. Single and sequential images as visual solutions. Six hours. *(Spring)*

ARTL 3981. Illustration Project. (3) Prerequisite ARTL 3186 and 3286. Independent studio course requiring strong illustration skills. Focus on initiation and implementation of an advanced level project solving a complex artistic problem. Public presentation of project and portfolio refinement required. Six hours. *(Fall, Spring)*

Multi-Media

ARTM 2105. Electronic Media I. (3) Prerequisites: ARTB 1201, 1203, and 1206 or consent of instructor. Methods of digital and electronic production within a fine arts context, Macintosh hardware and software, an historical overview of electronic artists and artworks, and the Internet as a publishing and research tool. Six hours. *(Fall, Spring, Summer)*

ARTM 3005. Topics in Multi-media. (1-3) Special Topics in multi-media. May be repeated for credit with change in topic. *(On demand)*

ARTM 3103. Animation and Interactivity. (3) Prerequisites: ARTM 2105 or consent of instructor. Emphasis on the tools, techniques, and software used in the creation of interactive multimedia and animation, especially media creation for the Internet and CD-ROM. *(Fall)*

ARTM 3104. Installation Art. (3) Prerequisites: ARTB 1201, 1202, and 1203. Techniques and methods of creating Installation Art, from the generation of initial ideas, to experimentation, mockups, and final assembly. Emphasis on the historical and creative issues surrounding the nature and definition of installation art. *(Spring)*

ARTM 3105. Video Art. (3) Prerequisite: ARTM 2105. Video as an art form, including basic techniques of video production and editing, image processing techniques, integration between video and the computer, aesthetic and performance strategies for working in a time-based medium, and survey of the history of video art. *(Spring)*

ARTM 3205. Applied Electronic Media. (3) Prerequisites: ARTM 3103 and successful completion of BFA review or consent of instructor. Advanced work in video art, interactive design, and electronic installation art. Course requires significant knowledge of electronic and digital production methods, including video production and multimedia authoring. *(Spring)*

ARTM 3405. Internship in Electronic Media. (3) Prerequisite: ARTM 3105 or 3205 or consent of the instructor. Non-salaried opportunity for students to observe, examine, and participate in the creative dynamics and procedural operations of an art organization, production house or other arts related business or expert craftsperson dealing with electronic media. Sponsor supervised. Average of eight hours per week for fifteen weeks for a total of 120 hours. *(Pass/No Credit grade evaluation) (On demand)*

Painting

ARTP 2131. Painting I. (3) Prerequisite: ARTB 1201 and 1203 or consent of instructor. Basic theory and technique of oil painting. Six hours. *(Fall, Spring)*

ARTP 2133. Watercolor/Mixed Media. (3) Fundamentals of watercolor and related mixed media with emphasis on

developing aesthetic understandings, skills in handling painting media and exploration of varied approaches to pictorial solutions. Individual experimentation and expression. May be repeated for credit. Six hours. *(On demand)*

ARTP 3031. Topics in Painting. (1-3) Special topics in painting. May be repeated for credit with change in topic. *(On demand)*

ARTP 3131. Abstract Painting. (3) Prerequisite: ARTP 2131. Varieties of abstraction in modern and post-modern painting practice. Principal media are oil and acrylic paints, collage, mixed media. Six hours. *(Fall)*

ARTP 3132. Figure in Painting. (3) Prerequisite: ARTP 2131. Human form as a vehicle for artistic expression in oils, acrylics, and mixed media. Six hours. *(Spring)*

ARTP 3931. Painting Projects I. (3 or 6) Prerequisite: ARTP 3131 and 3132 or consent of instructor. Studio/seminar research course focused on producing a body of work related to an artistic problem or theme chosen by the student. Six hours. *(Fall, Spring)*

ARTP 3932. Painting Projects II. (6) Prerequisite: ARTP 3931. Continuation of ARTP 3931 culminating in a public exhibition of a body of original art work. Six hours. *(Fall, Spring)*

Printmaking

ARTR 2161. Lithography I. (3) Prerequisites: ARTB 1201 and 1203 or consent of instructor. Introduction to lithographic pencils, crayons, and tusche washes. Basic theory and techniques for hand printing black and white lithographs from stones and plates. Particularly suited to developing drawing skills. Six hours. *(Fall)*

ARTR 2162. Etching & Woodcut I. (3) Prerequisites: ARTB 1201 and 1203 or consent of instructor. Introduction to intaglio techniques of etching, aquatinting, and drypoint, and to relief techniques of woodcut, linocut, and inkless embossing. Emphasis on personal imagery along with the expressive potential of the media. Six hours. *(Spring)*

ARTR 2163. Silkscreen I. (3) Prerequisites: ARTS 1201 and 1203 or consent of instructor. Introduction to silkscreen techniques of paper stencil, drawing fluid blockout, crayon, tusche and glue method, and photo emulsion. Emphasis on personal imagery along with the expressive potential of the media. Six hours. *(Spring) (Alternate years)*

ARTR 3061. Topics in Printmaking. (1-3) Special topics in printmaking. May be repeated for credit with change in topic. *(On demand)*

ARTR 3168. Printmaking IV. (3) Prerequisite: one of the following: ARTR 2161, 2162, 2163, or 3061. Development of intermediate skills in any or combined areas of printmaking (i.e., lithography, intaglio, relief, silkscreen, calligraphy, drawing with printed collage, artist's books or monoprinting). Exploration of color printing and a continued survey of image-making techniques. Six hours. *(Fall, Spring)*

ARTR 3169. Printmaking V. (3) Prerequisite: ARTR 3168. Further exploration and development of image-making techniques and printing skills in any or combined areas of printmaking. Special emphasis on artistic themes. Six hours. *(Fall, Spring)*

ARTR 3261. Printmaking VI. (3) Prerequisite: ARTR 3169. Development of advanced skills in any or combined printmaking techniques. Emphasis on the development of individual concepts, themes, and printmaking portfolios. Six hours. *(Fall, Spring)*

ARTR 3262. Printmaking VII. (3) Prerequisite: ARTR 3261. Continuation of ARTR 3261. Six hours. *(Fall, Spring)*

Time Arts/Photography

ARTT 2191. Photographic Media I. (3) Prerequisite: ARTB 1206 or consent of instructor. Fundamental principles, processes, and aesthetics of photography in black and white and color media. Introduction to photographic color theory, operation of cameras, and basic darkroom techniques. Principles of photography as a means of personal expression. Six hours. *(Fall, Spring, Summer)*

ARTT 2291. Black and White Printing. (3) Prerequisites: ARTB 1201 and ARTT 2191. Continuation of ARTT 2191 with emphasis on contemporary methods, approaches and techniques in silver printing used as a means of creative personal expression. Six hours. *(Spring)*

ARTT 2292. Color Photography. (3) Prerequisite: ARTB 1201 and ARTT 2191. Continuation of ARTT 2191 with emphasis on color negative printing and theory and processes used as a means of creative personal expression. Six hours. *(On demand)*

ARTT 3091. Topics in Time Arts. (1-3) Prerequisite: consent of instructor. Special topics in time arts. May be repeated for credit with change in topic. *(On demand)*

ARTT 3097. Issues in Time Arts. (3) Prerequisite: consent of instructor. Identification of historical, contemporary and future issues affecting the use and understanding of photography and electronic imaging, including video, when used as a means of personal expression. May repeat for credit with change in topic. *(On demand)*

ARTT 3191. Camera and Light. (3) Prerequisite: ARTB 1201 and ARTT 2191. Principles and practices of small, medium or large format photography, in conjunction with available and studio lighting techniques. Emphasis on personal expression. Six hours. *(Fall)*

ARTT 3193. Alternative Photographic Media. (3) Prerequisite: ARTT 2291. Alternative silver and non-silver photographic media and aesthetics. Experimental studies in the personal and imaginative use of photographic materials. Six hours. *(On demand)*

ARTT 3195. Time Arts As Documents. (3) Prerequisite: ARTT 2191 or consent of instructor. Examines the nature of time arts documents, considering their sociological, anthropological, and artistic qualities. Students are required to study the history and criticism of documentation and to

make a document incorporating historical information and contemporary concerns. Six hours. *(On demand)*

ARTT 3291. Advanced Photographic Media. (3) Prerequisite: ARTT 3191 or consent of instructor. Advanced use of the camera as a medium of individual creative expression. Projects in all types of photographic and photographically related media. May be repeated for credit. Six hours. *(On demand)*

ARTT 3409. Internship in Photography. (3) Prerequisite: Consent of instructor. Non-salaried opportunity for students to observe, examine, and participate in the creative dynamics and procedural operations of a photography art organization, photographically related business, or museum studies. Sponsor and faculty supervised. An average of eight hours per week for fifteen weeks for a total of 120 hours. *(Pass/No Credit grade evaluation) (Fall, Spring, Summer)*

ARTT 3695. Time Arts Seminar I. (3) Prerequisite: 12 semester hours of photographic requirements, consent of instructor, and corequisite ARTT 3995. A Seminar emphasizing verbal and written criticism of photography and photographically related media. Criticism focused on historical and contemporary bodies of work as well as on students' portfolios. Three lecture hours taken in conjunction with ARTS 3995. *(Fall, Spring)*

ARTT 3696. Time Arts Seminar II. (3) Prerequisites: ARTT 3695, 3995, and corequisite 3996. Continuation of ARTT 3695. Three lecture hours taken in conjunction with ARTT 3996. *(Fall, Spring)*

ARTT 3891. Time Arts Workshop. (1-6) Prerequisite: consent of instructor. Contracted and pre-approved arrangements for student to receive credit for photographic, video, and electronic imaging workshops conducted outside the University's course offerings. May be repeated for credit. Variable hours. *(On demand)*

ARTT 3892. Time Arts Readings. (3) Directed readings in time arts studies, including photography, video, and electronic imaging. Emphasis to be placed on the multifaceted nature of time arts media as they are used in the arts and humanities, and on the identification of the major concepts and persons affecting the artistic and critical development of those media. *(On demand)*

ARTT 3995. Time Arts Projects I. (3) Prerequisite: 12 semester hours of photographic requirements, consent of instructor. Time Arts photography, video, and photo-electronic media studio focused on producing a body of work related to an artistic problem or theme chosen and explored as visual research by the student. Six hours. *(Fall, Spring)*

ARTT 3996. Time Arts Projects II. (3) Prerequisite: ARTT 3995. Continuation of ARTT 3995 plus the requirement to complete a body of original art work and to hold a public exhibition. Six hours taken in conjunction with ARTT 3695. *(Fall, Spring)*

Sculpture

ARTZ 2141. Sculpture I. (3) Prerequisites: ARTB 1202 and 1203 or consent of instructor. Beginning studio exploring three-dimensional forms, concepts, and techniques utilizing plaster and wood as sculptural media. Six hours. *(Fall, Spring)*

ARTZ 2146. Metalsmithing/Jewelry I. (3) Prerequisite: ARTZ 1202 or consent of instructor. Beginning studio exploring three-dimensional forms, concepts and techniques utilizing non-ferrous metals in functional design. Six hours. *(Fall, Spring, Summer)*

ARTZ 3041. Topics in Sculpture. (1-3) Special Topics in sculpture. May be repeated for credit with change in topic. *(On demand)*

ARTZ 3046. Topics in Metalsmithing/Jewelry. (1-3) Special topics in metalsmithing. May be repeated for credit with change in topic. *(On demand)*

ARTZ 3141. Sculpture II. (3) Prerequisite: ARTZ 2141 or consent of instructor. Studio to continue exploration of three-dimensional forms and concepts while introducing more advanced wood-forming processes, basic metal-fabrication techniques, and metal casting. Six hours. *(Fall, Spring)*

ARTZ 3241. Sculpture III. (3) Prerequisites: ARTC 2175 and ARTZ 3141 or consent of instructor. Continued exploration of three-dimensional forms and concepts using a combination of media. Introduction of basic forming processes and techniques for plastics and fiberglass. Six hours. *(Fall, Spring)*

ARTZ 3242. Sculpture IV. (3) Prerequisite: ARTZ 3241 or consent of instructor. Continued exploration of three-dimensional forms and concepts. Introduction of advanced metal-fabrication techniques and continued emphasis on mixed-media approach to sculpture making. Six hours. *(Fall, Spring)*

ARTZ 3941. Sculpture Projects I. (6) Prerequisite: ARTZ 3242 or consent of instructor. Exploration of individual directions in sculpture. Six hours. *(Fall, Spring)*

ARTZ 3942. Sculpture Projects II. (6) Prerequisite: ARTZ 3941. Continued exploration of individual directions in sculpture. Six hours. *(Fall, Spring)*

BIOLOGY (BIOL)

BIOL 1000. Special Topics in Biology. (1-4) Prerequisites: vary with course. Special topics for non-majors in Biology. May be repeated for credit as topics vary. Lecture hours and laboratory hours vary by courses taught. *(On demand)*

BIOL 1110. Principles of Biology I. (3) (S) BIOL 1110L. Introduction to biology for non-majors. Fundamental principles of life with a human emphasis. Not accepted toward the major in Biology. *(Fall, Spring, Summer)*

BIOL 1110L. Principles of Biology I Laboratory. (1) (S) Prerequisite or corequisite: BIOL 1110. One laboratory period of three hours a week. Not accepted toward the major in Biology. *(Fall, Spring, Summer)*

BIOL 1115. Principles of Biology II. (3) (S) Prerequisite: BIOL 1110 or consent of instructor. Continuation of BIOL 1110 for non-majors. Fundamental principles of life with a human emphasis. *(Fall, Spring)*

BIOL 1115L. Principles of Biology II Laboratory. (1) (S) Prerequisite or corequisite: BIOL 1115. One laboratory period of three hours a week. *(Fall, Spring)*

BIOL 1222. Plant Biology. (3) Corequisite: BIOL 1222L. The morphology, function, reproduction, phylogeny, and ecology of plants. *(Fall, Spring)*

BIOL 1222L. Plant Biology Laboratory. (1) Prerequisite or corequisite: BIOL 1222. One laboratory period of three hours a week. *(Fall, Spring)*

BIOL 1233. Animal Biology. (3) Corequisite: BIOL 1233L. The morphology, function, development, phylogeny, and ecology of the principal invertebrate and vertebrate types. *(Fall, Spring)*

BIOL 1233L. Animal Biology Laboratory. (1) Prerequisite or corequisite: BIOL 1233. One laboratory period of three hours a week. *(Fall, Spring)*

BIOL 1259. Bacteriology. (3) Prerequisite: one semester of chemistry. Basic physiology of bacteria, fungi, protozoa, and viruses, with emphasis on host-parasite interaction and control and epidemiology of infectious diseases. Not accepted toward the major in Biology. *(Fall, Spring, Summer)*

BIOL 1259L. Bacteriology Laboratory. (1) Prerequisite or corequisite: BIOL 1259. One laboratory period of three hours a week. Not accepted toward the major in Biology. Attendance mandatory for safety training. *(Fall, Spring, Summer)*

BIOL 1273. Human Anatomy and Physiology. (3) (S) Prerequisites: CHEM 1203, 1204. Fundamentals of the anatomy and physiology of the human body. Not accepted toward the major in Biology. *(Fall, Summer)*

BIOL 1273L. Human Anatomy and Physiology Laboratory. (1) (S) Prerequisite or corequisite: BIOL 1273. One laboratory period of three hours a week. Not accepted toward the major in Biology. *(Fall, Summer)*

BIOL 1274. Human Anatomy and Physiology II. (3) Not accepted toward the major in Biology. Prerequisite: BIOL 1273. Continuation of BIOL 1273. Students cannot receive credit for both BIOL 1274 and BIOL 3273. *(Spring, Summer)*

BIOL 1274L. Human Anatomy and Physiology Laboratory II. (1) (S) Prerequisite or corequisite: BIOL 1274. One laboratory period of three hours a week. Not accepted toward the major in Biology. *(Spring, Summer)*

BIOL 2000. Special Topics in Biology. (1-4) Prerequisites: vary with course. Special introductory topics for biology majors. May be repeated for credit as topics vary. Lecture hours and laboratory hours will vary with the courses taught. *(On demand)*

BIOL 2111. Cell Biology. (3) Prerequisite: BIOL 1222, 1233 and their labs; prerequisite or corequisite CHEM 2131 + lab; corequisite BIOL 2111L. Structure and function of cells. *(Fall, Spring)*

BIOL 2111L. Cell Biology Laboratory. (1) Prerequisite or corequisite: BIOL 2111. One laboratory period of three hours a week. *(Fall, Spring)*

BIOL 3000. Special Topics in Biology. (1-4) Prerequisite: vary with course. Special topics for intermediate level majors in Biology. May be repeated for credit as topics vary. Lecture hours and laboratory hours will vary with the courses taught. *(On demand)*

BIOL 3144. Ecology. (3) Prerequisites: BIOL 1222 and 1233. Interrelationships of organisms and their environment. *(Fall, Spring)*

BIOL 3144L. Ecology Laboratory. (1) Prerequisite or corequisite: BIOL 3144. One laboratory period of three hours a week. *(Fall, Spring)*

BIOL 3166. Genetics. (3) Prerequisite: BIOL 2111. Basic concepts of heredity; principles of classical, molecular, and population genetics. *(Fall, Spring, Summer)*

BIOL 3166L. Genetics Laboratory. (1) Prerequisite or corequisite: BIOL 3166. One laboratory period of three hours a week. *(Fall, Spring)*

BIOL 3202. Horticulture. (3) (W) Prerequisite: BIOL 1222. Principles of horticulture, greenhouse management, environmental factors, production, and maintenance of cultivars, and landscaping. *(Fall)*

BIOL 3202L. Horticulture Laboratory. (1) Prerequisite or corequisite: BIOL 3202. Greenhouse work, plant identification, and field trips. One laboratory period of three hours a week. *(Fall)*

BIOL 3215. Economic Botany. (3) (W) Prerequisite: BIOL 1222. Origins of agricultural plants; history of use and misuse of plants by humans; consideration of major groups of crop, spice, medicinal, and drug plants. *(Spring)*

BIOL 3229. Field Botany. (3) Prerequisite: BIOL 1222 and consent of Department. A field course stressing identification, classification and habitat of the vascular plants, particularly of the Piedmont, but also including the Coastal Plain and the mountains of North Carolina. Six hours a day for 10 days. *(Summer)*

BIOL 3231. Invertebrate Zoology. (4) Prerequisite: BIOL 1233. Taxonomy, anatomy, physiology, and life histories of selected invertebrates. Three lecture hours and one laboratory period of three hours a week. *(On demand)*

BIOL 3233. Vertebrate Zoology. (4) Prerequisite: BIOL 1233. Taxonomy, anatomy, physiology, and life histories of vertebrates. Three lecture hours and one laboratory period of three hours a week. *(Fall)*

BIOL 3234. Field Entomology. (3) Prerequisite: BIOL 1233 or consent of Department. A field course stressing

identification and ecology of insects of the Piedmont of North Carolina. Six hours a day for 10 days. *(Summer)*

BIOL 3235. The Biology of Insects. (3) Prerequisite: BIOL 1233 or consent of Department. The anatomy, physiology, development, behavior, ecology, and medical and economic importance of insects. *(On demand)*

BIOL 3271. Cellular Neuroscience. (3) Prerequisite: BIOL 2111(Biology majors), PSYC 3113 (Psychology majors) or consent of Department of neurons synapses and principles of neural development and neural plasticity. *(Fall)*

BIOL 3271L. Neuroscience Laboratory. (1) Prerequisite or corequisite: BIOL 3271. Principles of excitability and synaptic function; neuroanatomy; neural system functions, and behavior investigated non-invasive experimentation with humans and animals. *(Fall)*

BIOL 3272. Plant Physiology. (3) Prerequisites: BIOL 2111. Metabolic and physiological processes of plants and conditions which affect or regulate these processes. *(Fall)*

BIOL 3272L. Plant Physiology Laboratory. (1) Prerequisite or corequisite: BIOL 3272. One laboratory period of three hours a week. *(Spring)*

BIOL 3273. Animal Physiology. (3) Prerequisite: BIOL 2111. Fundamental control mechanisms that operate to maintain the homeostatic state. Students cannot receive credit for both BIOL 1274 and BIOL 3273. *(Fall, Spring)*

BIOL 3273L. Animal Physiology Laboratory. (1) Prerequisite or corequisite: BIOL 3273. One laboratory period of three hours a week. *(Fall, Spring)*

BIOL 3274. Systems Neuroscience. (3) Prerequisite: BIOL 2111 (Biology majors), PSYC 3113 (Psychology majors) or equivalent. Review of neuron excitability and synaptic function; physiology of the main functional systems: sensory, motor, homeostatic/affective, and gnostic; system-level origins of learning, memory, and consciousness. *(Spring)*

BIOL 3405. Internship in Community Education and Service. (1-3) Prerequisites: junior standing, acceptance into program and approval of Department. A project-oriented, service-learning internship with a community organization. The Department of Biology has the option of recognizing this credit as fulfilling departmental requirements and granting permission to repeat for credit. Maximum credit toward major is three hours. *(Fall, Spring, Summer)*

BIOL 3500. Biology Cooperative Education Experience. (0) Prerequisite: approval by the Department and the University Career Center. Required of students participating in the Cooperative Education Program during the semesters in which they are working. Course may be repeated. *(Fall, Spring)*

BIOL 3800. Tutorial in Biology. (1-4) Prerequisite: consent of Department. Enables junior and senior biology majors to engage in directed study in their fields of interest. Maximum credit toward major: two hours for B.A.; four hours for B.S. May be repeated for credit. *(Fall, Spring, Summer)*

BIOL 3900. Undergraduate Research. (1-4) Prerequisite: consent of the Department. Enables junior and senior biology majors to initiate research projects in their respective fields of interest. Maximum credit toward major: two hours for B.A.; four hours for B.S. May be repeated for credit as topics vary. May substitute for only one lab. *(Fall, Spring, Summer)*

BIOL 4000. Special Topics in Biology. (1-4) Prerequisites and credit hours vary with topics. Special topics for advanced undergraduates. May be repeated for credit as topics vary. Lecture hours and laboratory hours will vary with the courses taught. *(Fall, Spring)*

BIOL 4110. Methods in Biological Electron Microscopy. (3) Prerequisites: BIOL 4171 or 4291, two area requirements, and consent of Department. A laboratory-oriented course in the methodology and applications of transmission and scanning electron microscopy. Two laboratory periods of three hours each a week and three additional laboratory hours. *(Fall)*

BIOL 4111. Evolution. (3) (W) Prerequisites: BIOL 3166. Theories of evolution and forces which affect gene frequencies. *(Fall)*

BIOL 4121. Biometry. (4) Prerequisite: one course in statistics. Design and analysis of experiments. Three lecture hours and one laboratory period of three hours a week. *(Spring)*

BIOL 4144. Advanced Ecology. (4) (W) Prerequisite: BIOL 3144. Energy flow, nutrient cycles, community structure, population growth, and regulation. Three lecture hours and one laboratory period of three hours a week. *(Alternate Spring)*

BIOL 4149. Limnology and Oceanography. (4) Prerequisites: BIOL 1222 and 1233. Geological, physical, chemical, and biological aspects of lakes, streams, estuaries and oceans. Three lecture hours and one laboratory period of three hours a week. *(Fall)*

BIOL 4167. Medical Genetics. (3) Prerequisite: BIOL 3166. Detection of and insight into intrauterine, chromosomal, genic, and molecular abnormalities. *(Spring)*

BIOL 4168. Recombinant DNA Techniques. (4) Prerequisite: BIOL 3166 or CHEM 4165 and permission of the instructor. Modern molecular biological methods (such as DNA cloning, gel electrophoresis, nucleic acid hybridization, PCR, and DNA sequencing) data analysis and interpretation. Two lecture hour and two laboratory periods of three hours a week. *(Fall)*

BIOL 4171. Cell Physiology. (3) Prerequisites: BIOL 2111. The fundamental physicochemical properties of cells. *(Fall)*

BIOL 4184. Plant Biotechnology. (3) Prerequisite: BIOL 2111, 3166 and CHEM 2132 or consent of Department. A laboratory-oriented course designed to integrate plant molecular biology, recombinant DNA technology, and plant cell and tissue culture. One lecture hour and two laboratory periods of three hours a week. *(Spring) (Alternate years)*

BIOL 4189. Mechanisms in Development. (3) Prerequisite: BIOL 4283 or permission of the Department. Cellular and molecular bases of differentiation; an exploration of the experimental analysis of causal and controlling factors in development. *(Spring)*

BIOL 4199. Molecular Biology. (3) Prerequisites: BIOL 3166 and CHEM 2132. Structural and functional interaction of nucleic acids and proteins in the replication, transcription, and translation of genetic material. *(Fall)*

BIOL 4205. Advanced Horticulture. (3) Prerequisite: BIOL 3202. Topics in ornamental horticulture and landscaping, including greenhouse projects and field trips. Two lecture hours and three hours of lab a week. *(Spring)*

BIOL 4221. Plant Systematics. (4) (W) Prerequisite: BIOL 3166. Identification and classification of vascular plants, including experimental concepts of speciation. Three lecture hours and one laboratory period of three hours a week. *(Spring)*

BIOL 4223. The Fungi. (3) Prerequisite: BIOL 2111; Consent of Department for graduate credit. Morphology, life cycles, ecology, taxonomy, and medical economic significance of the fungi and organisms historically aligned with the fungi. *(On demand)*

BIOL 4223L. The Fungi Laboratory. (1) Co-requisite/prerequisite: BIOL 4223; Consent of Department for graduate credit. One laboratory period of three hours a week. *(On demand)*

BIOL 4229. Dendrology. (4) Prerequisite: BIOL 4221. The identification, structure, function, ecology, reproduction, and evolutionary relationships of woody plants. Three lecture hours and one three-hour lab a week. *(Fall)*

BIOL 4233. Parasitology. (4) Prerequisite: BIOL 1233. Morphology, life cycles, ecology, taxonomy and economic importance of parasites. Three lecture hours and one laboratory period of three hours a week. *(Spring)*

BIOL 4234. Wildlife Biology. (3) (W) Prerequisite: BIOL 3144. Concepts, principles and techniques of wildlife biology. Value, demography, management, and conservation. *(On demand)*

BIOL 4234L. Wildlife Biology Laboratory. (1) Lab is required. One laboratory period of three hours a week plus field trips. *(On demand)*

BIOL 4235. Mammalogy. (4) Prerequisite: BIOL 3233 or 4293. Taxonomy, anatomy, physiology, and life histories of the mammals. Three lecture hours and one laboratory period of three hours a week. *(Fall)*

BIOL 4243. Animal Behavior. (3) Prerequisite: BIOL 1233. An ethological approach to how animals respond to their environment. Causation, development, and adaptive significance of behavior in social systems. *(Fall)*

BIOL 4243L. Animal Behavior Laboratory. (1) Prerequisite or corequisite: BIOL 4243. One laboratory period of three hours a week. *(Fall)*

BIOL 4244. Conservation Biology. (3) (W) Prerequisite: BIOL 3144. Conservation values, extinction rates, genetic diversity, demography, habitat fragmentation, reserve management, ecological restoration. *(Yearly)*

BIOL 4244L. Conservation Biology Laboratory. (1) Prerequisite or corequisite: BIOL 4244. One laboratory period of three hours a week plus field trips. *(Fall)*

BIOL 4250. Microbiology. (3) Prerequisites: BIOL 2111. Morphology, physiology, pathogenicity, metabolism, and ecology of bacteria, viruses, protozoa and fungi. Aquatic, diary and food microbiology. *(Fall, Spring)*

BIOL 4250L. Microbiology Laboratory. (1) Prerequisite or corequisite: BIOL 4250. One laboratory period of three hours a week. Attendance mandatory for safety training. *(Fall, Spring)*

BIOL 4251. Immunology. (3) Prerequisites: BIOL 3166. Cellular, molecular and genetic basis for immunity; physical chemistry of antigens and antibodies and their interactions; defense mechanisms. *(Spring)*

BIOL 4251L. Immunology Laboratory. (1) Prerequisite or corequisite: BIOL 4251. One laboratory period of three hours a week. *(Spring)*

BIOL 4252. Monoclonal Antibodies/Production and Purification. (3) Prerequisites or corequisites: BIOL 4251 or consent of the Department. A laboratory-oriented course devoted to the theory and procedures for the production and utilization of monoclonal antibodies and the associated techniques for protein isolation and characterization. One lecture hour and two laboratory periods of three hours a week. *(On demand)*

BIOL 4253. Marine Microbiology. (4) Prerequisites: BIOL 4250 and 4250L. Bacteria, fungi and viruses of marine origin, and their response to the salt, temperature, pressure and nutrient environment of the ocean. Roles of marine microorganisms in public health, pollution and fouling. Three lecture hours and one laboratory period of three hours a week. *(Spring)*

BIOL 4254. Epidemiology. (3) Prerequisite: BIOL 1259 or 4250. History and practices of epidemiology with emphasis on modes of transmission of clinically important infectious agents and the analysis of epidemiological data. Three lecture hours a week. *(On demand)*

BIOL 4255. Bacterial Genetics. (3) (3G) Prerequisite: BIOL 3166 or consent of Department. Regulation of gene expression in bacterial systems. Bacteriophage genetics. DNA transfer in bacteria. *(Spring)*

BIOL 4256. Pathogenic Bacteriology. (3) (3G) Prerequisite: BIOL 4250. Cellular and molecular interactions of mammalian hosts with procaryotic parasites. *(Fall)*

BIOL 4256L. Pathogenic Bacteriology Laboratory. (1) Prerequisite: BIOL 4250L. Prerequisite or corequisite: BIOL 4256. One laboratory period of three hours a week. *(Spring)*

BIOL 4257. Microbial Physiology and Metabolism. (3) Prerequisite: BIOL 4250. Lectures in microbial metabolism and physiology, including such topics as bacterial nutrition, transport mechanisms, catabolism and energy production, biosynthesis, global regulation of gene expression. Three one-hour lectures per week. *(Spring)*

BIOL 4257L. Microbial Physiology and Metabolism Lab. (1) Prerequisite or co-requisite: BIOL 4257. Laboratory exercises covering such topics in general microbiology as characterization of microbial growth, transport, preparation and use of cell-free systems, isolation and electrophoresis of periplasmic proteins, isolation and characterization of membrane lipids, and the polymerase chain reaction. One three-hour lab per week. *(Spring)*

BIOL 4259. Virology. (3) Prerequisites: BIOL 4250, 4250L and CHEM 2132. Morphology, classification, genetics, and pathogenicity of bacterial and animal viruses. *(Fall)*

BIOL 4259L. Virology Laboratory. (1) Prerequisite or corequisite: BIOL 4259. One laboratory period of three hours per week. *(Fall)*

BIOL 4260. Population Genetics. (3) Prerequisite: STAT 1221, BIOL 3166. The genetics of qualitative and quantitative traits in populations, including an assessment of the factors affecting the extent and pattern of the genetic variation in these traits. *(On demand)*

BIOL 4277. Endocrinology. (3) Prerequisites: BIOL 3273. Endocrine glands and their physiological roles in metabolism, growth and reproduction. *(Spring)*

BIOL 4277L. Endocrinology Laboratory. (1) Prerequisite or corequisite: BIOL 4277. One laboratory period of three hours a week. *(On demand)*

BIOL 4279. Neurobiology. (3) Prerequisite: BIOL 3273. Physiology and anatomy of nervous systems, especially mammalian. *(Spring)*

BIOL 4279L. Neurobiology Laboratory. (1) Prerequisite or corequisite: BIOL 4279. One laboratory period of three hours a week. *(Spring)*

BIOL 4282. Developmental Plant Anatomy. (3) Prerequisite: BIOL 2111. Study of plant cells, tissues, organs, and patterns of growth and differentiation. *(Spring)*

BIOL 4282L. Developmental Plant Anatomy Laboratory. (1) Prerequisite or corequisite: BIOL 4282. One laboratory period of three hours a week. *(Spring)*

BIOL 4283. Animal Development. (3) Prerequisite: BIOL 2111. Developmental processes occurring chiefly during gametogenesis, fertilization, early embryogenesis, and organogenesis. *(Fall)*

BIOL 4283L. Animal Development Laboratory. (1) Prerequisite or corequisite: BIOL 4283. One laboratory period of three hours a week. *(Fall)*

BIOL 4291. Histology. (4) Prerequisite: BIOL 2111. Animal tissues and organs; techniques of preparing tissues for analysis. Three lecture hours and one laboratory period of three hours a week. *(Spring)*

BIOL 4292. Advances in Immunology. (3) Prerequisite: BIOL 4251 or consent of Department. Current topics in immunology with particular emphasis upon the genetic systems and molecular mechanisms underlying immune reactions. Additional work required by graduate students. *(Fall)*

BIOL 4293. Comparative Vertebrate Anatomy. (4) Prerequisite: Comparison of selected anatomical systems across vertebrates, with emphasis on evolution and functional analyses. Three hours of lecture and one laboratory period of three hours per week. *(Spring)*

BIOL 4600. Seminar. (1) (O) Prerequisite: Senior standing. Required of all majors. Student presentation of oral and written reports from pertinent biological literature. Exit exam for biology majors will be administered. *(Fall, Spring, Summer)*

BIOL 4601. Honors Seminar. (2) (O) Open by invitation to juniors. Exploration of the nature of science, ethics in science, critical analysis, hypothesis testing and statistical analysis, peer review, and research skills. Students analyze professional research papers, present their analyses orally, select an Honors Advisor, and write a research proposal. Exit exam for biology majors will be administered. Two lecture hours with occasional additional hours to attend special lectures and seminars. *(Spring)*

BIOL 4700. Honors Research I. (3) Prerequisite: BIOL 4601. Senior status. Independent Honors project: proposal, and research. By invitation. *(Fall, Spring, Summer)*

BIOL 4701. Honors Research II. (3) (W) Prerequisite: BIOL 4700. Independent Honors project: thesis preparation and presentation of results. May be substituted for BIOL 4600 and for one lab. *(Fall, Spring, Summer)*

BUSINESS LAW (BLAW)

BLAW 3150. Business Law I (3) Prerequisite: Junior standing. A study of the legal setting of business and its relationship to the business firm. Topics covered include: the nature of law and the court system, criminal and civil procedure, alternative dispute resolution, constitutional authority to regulate business, business ethics, criminal law, torts, contracts, the law of sales, intellectual property, and cyberlaw. *(Fall, Spring, Summer) (Evening)*

BLAW 3200. Legal Environment in Business. (3) Legal environment in which business operates today; legal, social, and ethical considerations of managers within the framework of federal and state regulatory laws; role and function of federal regulatory agencies and their impact on business activities. (BLAW preparation to enter MBA. May not be taken for credit toward any undergraduate degree within the Belk College of Business Administration or used as equivalent credit for BLAW 3150/3250). *(Fall, Spring, Summer) (Evening)*

BLAW 3250. Business Law II. (3) Prerequisite: BLAW 3150. The study of the Uniform Commercial Code.

Subjects covered include commercial paper, bank deposits and collections, letters of credit, documents of title, secured transactions, creditors rights and bankruptcy, agency law, employment law and government regulation of business, business organizations and securities regulation, real and personal property, insurance, wills, trusts, and estates. *(Fall, Spring)*

BLAW 3252. Construction Law. (3) Prerequisite: junior standing. Examination of the legal problems encountered by architects, engineers, contractors, owners, sureties, and lenders involved in the construction process. Special emphasis on the legal rights and liabilities of the various participants in construction projects. Claims preparation, negotiation, arbitration, and litigation methods of dispute resolution. *(On demand)*

BLAW 3253. International Business Transactions. (3) Prerequisites: BLAW 3150, junior standing. An examination of the role of law in developing and conducting international business. Topics covered will include multinational enterprises, international trading of goods, regional economic communities, import/export regulation, technology transfer, and inter-national dispute settlement. *(On demand)*

BUSINESS HONORS (BUSN)

BUSN 2000. Topics in Business and Economics. (1-3) Current topics from business and economics. May be repeated for credit as topics vary with permission of student's major Department Chair. *(On demand)*

BUSN 3780. Business Honors Seminar. (3) Prerequisites: permission of the Business Honors Program Coordinator. Exploration of current topics in business and the methods of research appropriate to them. Development of research project proposal for Business Honors Thesis (BUSN 3790). *(Spring)*

BUSN 3790. Business Honors Thesis. (3) Prerequisites: BUSN 3780 and permission of Business Honors Coordinator. Honors project directed by Business Honors committee or assigned faculty member. One faculty contact hour per week and independent research. *(On demand)*

CIVIL ENGINEERING (CEGR)

CEGR 2101. Civil Engineering Drawing. (2) Prerequisite: ENGR 1202. Introduction to engineering drawing in the environmental, geotechnical, transportation, and structural sub-disciplines of civil engineering, including sketching, principles of mechanical drawing, and computer aided drawing (CAD). CAD utilizes the MOSAIC computing environment. One hour of lecture and three hours of laboratory per week. *(Fall)*

CEGR 2102. Engineering Economic Analysis. (2) Prerequisite: ENGR 1201. Economic analysis of engineering solutions; present and annual worth analysis; cost benefit analysis; internal rate of return analysis; bonds and cost estimating. Three hours per week. *(Fall)*

CEGR 2104. Surveying and Site Design. (3) Prerequisite: ENGR 1202. Elements of plane surveying, including taping, use of level, transit, theodolite, and total station; topographical surveying and mapping; error adjustment; area and volume computations; introduction to photogrammetry; site development; computer applications. One hour of lecture and 3 hours of of field work for four weeks: three hours of lecture for 11 weeks. *(Spring)*

CEGR 2154. Design Project Lab. (2) (O) Prerequisite: CEGR 2102. Corequisite: ENGR 1202. Problem definition, evaluation of design alternatives, design concepts, conceptual design. Students work together in teams to find, present, and defend their solutions to real world civil engineering problems. One hour of lecture and 3 hours of laboratory per week. *(Spring)*

CEGR 3090. Special Topics in Civil Engineering. (1-4) Prerequisite: Consent of CE Advisor. Examination of specific new areas emerging in the various fields of civil engineering based upon and synthesizing knowledge students have gained from the engineering science, mathematics, and physical science stems of the core curriculum. May be repeated for credit. *(On demand)*

CEGR 3122. Structural Analysis. (3) Prerequisites: MEGR 2144 and MATH 2171 and junior standing. Corequisite: CEGR 2152. Analysis of statically determinate and indeterminate beams, trusses and frames to include shear and moment diagrams, rough deflected shapes and deflections; influence lines and criteria for moving loads; indeterminate analyses to include methods of consistent deflection, slope deflection, and moment distribution. *(Fall)*

CEGR 3141. Introduction to Environmental Engineering. (3) Prerequisite: MATH 2171, CHEM 1251, and junior standing. Environmental engineering concepts, including stream pollution analysis, water and wastewater treatment processes; solid and hazardous waste management practices; pollution problems and controls; mass balance analyses, and review of pertinent legislation. *(Fall)*

CEGR 3143. Hydraulics and Hydrology. (3) Prerequisite: CEGR 2104 and junior standing. Fluid properties, pressure, closed-conduit flow, pipe networks, pumps, open channel flow, weirs, orifices, flumes; precipitation, runoff, groundwater flow, stream flow; flow measurement. *(Fall)*

CEGR 3153. Transportation Laboratory. (1) (W) Prerequisite: CEGR 3161. Design of transportation systems, including highways, airports, pipelines, and mass transit; route layout, geometric design and earthwork calculations; computer-aided system simulation and evaluation. One hour of lecture and three hours of laboratory per week. *(Spring)*

CEGR 3155. Environmental Laboratory. (1) (W) Prerequisite: CHEM 1251L, CEGR 3141. Laboratory problems in environmental engineering. Emphasis on analysis and presentation of results as well as on the significance of results as they affect theory and/or practice. One hour of lecture and three hours of laboratory per week. *(Spring)*

CEGR 3161. Transportation Engineering I. (3) Prerequisite: MATH 2241; CEGR 2102, 2104, and junior standing. Analysis of transportation facilities; planning,

location, and economic considerations, with special emphasis on land transportation. *(Fall)*

CEGR 3201. Systems and Design I. (3) Prerequisite: senior standing in Civil Engineering, CEGR 2154, and 3 of the following and the rest in progress: CEGR 3122, 3141, 3143, 3161, 3278. Systems engineering techniques applied to civil engineering problems emphasizing methodological considerations and engineering projects carried out by small groups of students. *(Fall)*

CEGR 3202. Systems and Design II. (3) Prerequisite: CEGR 3201. Continuation of CEGR 3201. Creatively investigate and produce alternative solutions for a comprehensive engineering project resulting in written and verbal class presentations. Three hours of laboratory per week. *(Spring)*

CEGR 3212. Computer Applications in Civil Engineering. (3) Prerequisite: 3 of the following: CEGR 3122, 3141, 3143, 3161, 3278. Application of digital computers and numerical methods to various types of civil engineering problems. Examinations in depth of selected civil engineering problems. *(On demand)*

CEGR 3221. Structural Steel Design I. (3) Prerequisites: CEGR 3122 and CEGR 3255 or consent of CE Advisor. Analysis and design of structural steel components with emphasis on theories necessary for a thorough understanding of the design procedure. Design philosophies and types of steel structures. Columns, tension members and laterally supported beams are considered. General Flexural theory, including bending of unsymmetrical sections. Current AISC Specifications used. *(Fall)*

CEGR 3225. Reinforced Concrete Design I. (3) Prerequisite: CEGR 3122 and CEGR 3255 or consent of CE Advisor. Analysis and design of reinforced concrete components with emphasis on fundamental theories. Mechanics and behavior of reinforced concrete. Flexural members to include singly and doubly-reinforced beams of various cross sections (rectangular, T-beams, joists, one-way slabs, and others). Shear in beams and columns. Short columns to include uniaxial and biaxial bending. Construction of short column interaction diagrams. Introduction to footings. Current ACI Specifications. *(Fall)*

CEGR 3232. Urban Engineering. (3) Prerequisite: consent of CE Advisor. An examination of those societal problems of metropolitan regions most amenable to engineering solutions. Current urban literature will be reviewed in seminar, and selected topics amenable to engineering analysis will be studied. Written reports will be presented. *(On demand)*

CEGR 3255. Structural Materials Laboratory I. (1) (W) Corequisite: CEGR 3122. Composition, properties, and testing of: wood, natural and artificial aggregates, bitumins, portland cement concrete, pozzolans, and structural metals. Data analysis, presentation, and report writing. One hour of lecture and three hours of laboratory per week. *(Spring)*

CEGR 3258. Geotechnical Laboratory. (1) (W) Prerequisite CEGR 3278. Tests to determine engineering properties of soils; consistency, permeability, shear strength, and consolidation. Data analysis, presentation and report writing. One hour of lecture and three hours of laboratory per week. *(Spring)*

CEGR 3278. Geotechnical Engineering. (3) Prerequisite: MATH 2171, and MEGR 2144. Soil origin, formation, composition, and classification; permeability; seepage; soil mechanics principles, including stresses, shear strength, and consolidation; foundations, retaining structures, and slope stability. Integration of design and technical reporting. *(Fall)*

CEGR 3282. Professional Development. (1) Prerequisite: graduation date before next fall semester. A series of one-hour lectures by faculty and invited speakers on basic concepts of professionalism and the nature and purpose of engineering ethics. *Pass/No Credit grading.* (*Fall*)

CEGR 3695. Civil Engineering Cooperative Education Seminar. (1) Required of Co-op students during semesters immediately following each work assignment for presentation of engineering reports on work done the prior semester. *(Fall, Spring, Summer)*

CEGR 3890. Individualized Study. (1-3) Prerequisite: consent of CE Advisor. Supervised individual study within an area of a student's particular interest which is beyond the scope of existing courses. *(On demand)*

CEGR 3990. Undergraduate Research in Civil Engineering. (1-4) Prerequisite: consent of CE Advisor. This course involves independent study of a theoretical and/or experimental problem in a specialized area of Civil Engineering. May be repeated for credit. *(On demand)*

CEGR 4090. Special Topics in Civil Engineering. (1-4) Consent of CE Advisor. Study of specific new areas emerging in the various fields of civil engineering. May be repeated for credit. *(On demand)*

CEGR 4108. Finite Element Analysis and Applications. (3) Prerequisite: consent of CE Advisor. Finite element method and its application to engineering problems. Application of displacement method to plane stress, plane strain, plate bending and axisymmetrical bodies. Topics include but are not limited to dynamics, fluid mechanics, and structural mechanics. *(Spring)*

CEGR 4121. Prestressed Concrete Design. (3) Prerequisites: CEGR 3225 and 4224 or consent of CE Advisor. Analysis and design of prestressed components and systems, including materials and systems for prestressing, loss of prestress, flexural and shear design in accordance with current building codes, analysis of indeterminate prestressed systems, and control of camber, deflection and cracking. *(On demand)*

CEGR 4123. Bridge Design. (3) Prerequisites: CEGR 3221 and 3225, or consent of CE Advisor. Review of bridge design codes and loadings; superstructure and substructure design of short, intermediate, and long span bridges constructed of steel and concrete; earthquake design; segmental and cable-stayed bridges. *(Spring) (Alternate years)*

CEGR 4124. Masonry Design. (3) Prerequisites: CEGR 3225 or consent of CE Advisor. Introduction of masonry materials and engineering and materials properties and testing procedures. Design of reinforced and unreinforced masonry (clay and concrete) walls, beams, and columns for vertical, winde, and seismic loads. Analysis and design of masonry structures (including torsion) and introduction to computer applications. *(On demand)*

CEGR 4128. Matrix Methods of Structural Analysis. (3) Prequisite: CEGR 3122 or consent of CE Advisor. Derivation of the basic equations governing linear structural systems. Application of stiffness and flexibility methods of trusses and frames. Solution techniques utilizing digital computer. *(On demand)*

CEGR 4141. Process Engineering. (3) Prerequisite: CEGR 3141 or consent of CE Advisor. Applications of material and energy balance principles to the study of chemical, biological, and environmental engineering processes. Overview of applied biotechnology, engineering thermodynamics, and kinetics. *(Fall)*

CEGR 4142. Water/Wastewater Engineering. (3) Prerequisite: CEGR 3141or consent of CE Advisor. Analysis and design of water and wastewater treatment processes including physical, chemical and biological treatment. Computer-aided design of treatment systems. *(Spring)*

CEGR 4143. Solid Waste Management. (3) Prerequisite: CEGR 3141 or consent of CE Advisor. Solid waste management, sources, generation rates, processing and handling, disposal, recycling, landfill closures, and remedial actions for abandoned waste sites. *(Spring) (Alternate years)*

CEGR 4144. Engineering Hydrology. (3) Prerequisite: consent of CE Advisor. A quantitative study of the various components of the water cycle, including precipitation, runoff, ground water flow, evaporation and transpiration, stream flow. Hydrograph analysis, flood routing, frequency and duration, reservoir design, computer applications. *(On demand)*

CEGR 4145. Groundwater Resources Engineering. (3) Prerequisite: CEGR 3141 or CEGR 3143 or consent of CE Advisor. Overview of hydrological cycle. Principles of groundwater flow and well hydraulics. Regional groundwater flow and flow nets. Water chemistry and contamination. Applications of groundwater modeling. *(Fall) (Alternate years)*

CEGR 4146. Advanced Engineering Hydraulics. (3) Prerequisite: CEGR 3143 or consent of CE Advisor. Problems of liquids as applied in civil engineering; open channel flow; dams and spillways; water power; river flow and backwater curves; pipe networks, fire flow, sewage collection, groundwater, computer applications. *(On demand)*

CEGR 4161. Advanced Traffic Engineering. (3) Prerequisite: CEGR 3161 or consent of CE Advisor. Analysis of basic characteristics of drivers, vehicles, and roadway that affect the performance of road systems. Stream flow elements, volume, density, speed. Techniques of traffic engineering measurements, investigations and data analysis, capacity analysis. Intersections, accidents, parking. *(Fall)*

CEGR 4162. Transportation Planning. (3) Prerequisite: CEGR 3161. Urban transportation; travel characteristics of urban transportation systems; analysis of transportation-oriented studies; analytic methods of traffic generation, distribution, modal split, and assignment; traffic flow theory. *(On demand)*

CEGR 4171. Urban Public Transportation. (3) Prerequisite: CEGR 3161 or consent of CE Advisor. Planning, design, and operation of bus, rail, and other public modes. Relationship between particular modes and characteristics of urban areas. Funding, security and other administrative issues. *(On demand)*

CEGR 4181. Human Factors in Traffic Engineering. (3) Prerequisite: CEGR 3161 or consent of CE Advisor. Study of the driver's and pedestrian's relationship with the traffic system, including roadway, vehicle, and environment. Consideration of the driving task, driver and pedestrian characteristics, performance and limitations with regard to traffic facility design and operation. *(On demand)*

CEGR 4182. Transportation Environmental Assessment. (3) Prerequisites: Senior standing and consent of CE Advisor. A study of the environmental impact analysis and assessment procedures for transportation improvements. Route location decisions. Noise, air quality, socio-economic, and other impacts. *(On demand)*

CEGR 4183. Traffic Engineering Studies. (3) Prerequisite: STAT 3128. Introduction to the traffic engineering studies most used by traffic engineers, including data collection techniques, statistical analysis procedures, report writing and presentation. One hour of lecture and three hours of laboratory per week. *(On demand)*

CEGR 4184. Highway Safety. (3) Prerequisite: CEGR 3161 and STAT 3128. Engineering responses at the state and local levels to the problem of highway safety. Extent of the highway safety problem, elements of traffic accidents, common accident countermeasures, collection and analysis of accident data, evaluation of safety-related projects and programs, and litigation issues. *(On demand)*

CEGR 4185. Geometric Design of Highways. (3) Prerequisite: CEGR 3153 and CEGR 3161. Theory and practice of geometric design of highways including intersections, interchanges, parking and drainage facilities. Driver ability, vehicle performance, safety and economics are considered. Two hours of lecture and three laboratory hours per week. *(On demand)*

CEGR 4222. Structural Steel Design II. (3) Prerequisite: CEGR 3221. Analysis and design of structural steel components and systems with emphasis on theories necessary for a thorough understanding of the design of complete structures. Compression members affected by local buckling, beams with lateral-torsional buckling, continuous beams, and beam columns are covered. Welded and bolted connections. Current AISC Specifications used. *(Spring)*

CEGR 4224. Advanced Structural Analysis. (3) Prerequisite: CEGR 3122. A continuation of CEGR 3122. Methods to determine deflections in structural members, including moment area, conjugate beam, virtual work, and Castigliano's theorem. Methods to analyze statically indeterminate structures, including approximate force, slope deflection, moment distribution, and matrix stiffness methods. Project to compare analysis techniques and introduce use of structural analysis computer programs. *(Spring)*

CEGR 4226. Reinforced Concrete Design II. (3) Prerequisite: CEGR 3225. Analysis and design of reinforced concrete components and systems with emphasis on the fundamental theories necessary for a thorough understanding of concrete structures. Concentrically loaded slender columns, slender columns under compression plus bending. Wall footings and column footings. Analysis of continuous beams and frames. Total design project involving the analysis and design of a concrete structure. Current ACI Specifications used. *(Spring)*

CEGR 4241. Chemical Processes in Water and Wastewater Treatment. (3) Prerequisites: CHEM 1251 and CEGR 3141, or consent of CE Advisor. Chemical principles involved in the treatment of water and wastewaters; principles of chemical equilibrium relevant to natural water systems; the nature and effect of chemical interactions of domestic and industrial waste effluents on natural water systems. (*On demand*)

CEGR 4262. Traffic Engineering. (3) Prerequisite: CEGR 3161 or consent of CE Advisor. Operation and management of street and highway systems. Traffic control systems, traffic flow theory, and highway capacity. Evaluation of traffic engineering alternatives and the conduct of traffic engineering studies. *(Spring)*

CEGR 4270. Earth Pressures and Retaining Structures. (3) Prerequisites: CEGR 3122 and 3278 or consent of CE Advisor. Earth pressure theories, effects of wall friction and external loads (including earthquake); design of rigid retaining walls (including structural details); sheetpile wall design; soil reinforcement systems for retaining structures; computer applications. *(On demand)*

CEGR 4271. Pavement Design. (3) Prerequisites: CEGR 3161 and 3278, or consent of CE Advisor. Pavement design concepts and considerations; engineering properties of pavement materials, including soils, bases, asphalt concrete, and portland cement concrete; design of flexible and rigid pavements including shoulders and drainage; computer applications for pavement analysis and design. (*On demand*)

CEGR 4278. Geotechnical Engineering II. (3) Prerequisite: CEGR 3278 or consent of CE Advisor; corequisite: CEGR 3258. Design of shallow and deep foundations, including structural considerations; lateral earth pressure theories; design of rigid and flexible earth retaining structures; advanced aspects of slope stability analysis; and computer applications. *(Spring)*

CEGR 4892. Individualized Study and Projects. (1-6) Prerequisites: consent of CE Advisor. Individual investigation and exposition of results. May be repeated for credit. *(On demand)*

Note: See the UNC Charlotte "Graduate Catalog" for complementary 5000 level (graduate credit) listings of 4000 level courses.

CHEMISTRY (CHEM)

Separate lecture and laboratory sections--Although the laboratory and lecture sections of CHEM 1111, 1112, 1203, 1204, 1251, 1252, 2131 and 2132 are taught as separate courses, it is strongly recommended that students take the appropriate laboratory concurrently with the lecture. Students with severe scheduling problems or students with course programs that do not require the laboratory may take the lecture without the laboratory. Retention of a laboratory after withdrawing from its associated lecture requires departmental approval. ***Students using CHEM 1111 and 1112 or CHEM 1203 and 1204 or CHEM 1251 and 1252 to satisfy the General Education requirements for the B.A. and B.S. degree must also take the associated laboratory courses.***

CHEM 1111. Chemistry in Today's Society. (3) (S) For students not majoring in a Physical or Biological Science, Engineering, or science-oriented preprofessional program. Qualifies as a prerequisite only for CHEM 1112. The role of chemistry in society and the impact of chemistry on society. An introduction to the chemical concepts needed to understand many of the numerous scientific problems confronting society today. Three lecture hours and one Problem Session hour per week. (Credit will be given for only one course: 1111, 1203, or 1251.) (*Fall, Summer*)

CHEM 1111L. Laboratory in Chemistry. (1) (S) Prerequisite or corequisite: CHEM 1111. Laboratory exercises to demonstrate what chemists do, techniques used in the laboratory, and the limitations inherent in any laboratory experiment. One three-hour laboratory per week. (Credit will be given for only one course: 1111L, 1203L, or 1251L.) (*Fall, Summer*)

CHEM 1112. Chemistry in Today's Society. (3) (S) Prerequisite: CHEM 1111. Continuation of CHEM 1111. Does not qualify as a prerequisite for any other chemistry course. Three lecture hours and one Problem Session hour per week. (Credit will be given for only one course: 1112, 1204 or 1252.) (*Spring, Summer*)

CHEM 1112L. Laboratory in Chemistry. (1) (S) Prerequisite: CHEM 1111 and 1111L. Prerequisite or corequisite: CHEM 1112. Continuation of CHEM 1111L. One three-hour laboratory per week. (Credit will be given for only one course: 1112L, 1204L, or 1252L.) (*Spring, Summer*)

CHEM 1203. General Chemistry. (3) (S) (Formerly CHEM 1103) Primarily for nursing majors. Qualifies as a prerequisite only for CHEM 1204. Fundamentals of chemistry and selected topics from inorganic chemistry. Three lecture hours and one Problem Session hour per week. (Credit will be given for only one course: 1111, 1203, or 1251.) (*Fall, Summer*)

CHEM 1203L. General Chemistry Laboratory. (1) (S) (Formerly CHEM 1103L) Prerequisite or corequisite: CHEM 1203. Laboratory investigations into the nature of inorganic compounds. One three-hour laboratory per week. (Credit will be given for only one course: 1111L, 1203L, or 1251L.) (*Fall, Summer*)

CHEM 1204. General Chemistry. (3) (S) Prerequisite: CHEM 1203. Continuation of CHEM 1203, with emphasis on organic chemistry and selected topics in biochemistry. Does not qualify as a prerequisite for any other chemistry course. Three lecture hours and one Problem Session hour per week. (Credit will be given for only one course: 1112, 1204, or 1252.) (*Spring, Summer*)

CHEM 1204L. General Chemistry Laboratory. (1) (S) Prerequisites: CHEM 1203 and 1203L. Perquisite or corequisite: CHEM 1204. Continuation of CHEM 1203L with emphasis on the reactions and characterization of organic compounds. One three-hour laboratory per week. (Credit will be given for only one course: 1112L, 1204L, or 1252L. (*Spring, Summer*)

CHEM 1251. Principles of Chemistry. (3) (S) Prerequisite: Chemistry Placement Test to determine section placement. A principles-oriented course for science majors. Fundamental postulates and laws of chemistry; the relationship of atomic structure to physical and chemical properties of the elements. Three lecture hours and one Problem Session hour per week. (Credit will be given for only one course: 1111, 1203, or 1251.) (*Fall, Spring, Summer*) (*Evenings*)

CHEM 1251L. Principles of Chemistry Laboratory. (1) (S) Prerequisite or corequisite: CHEM 1251. Experimental investigations involving the fundamental postulates and laws of chemistry. One three-hour laboratory per week. (Credit will be given for only one course: 1111L, 1203L, or 1251L.) (*Fall, Spring, Summer*) (*Evenings*)

CHEM 1252. Principles of Chemistry. (3) (S) Prerequisite: CHEM 1251. Continuation of CHEM 1251. Three lecture hours and one Problem Session hour per week. (Credit will be given for only one course: 1112, 1204, or 1252.) (*Fall, Spring, Summer*) (*Evenings*)

CHEM 1252L. Principles of Chemistry Laboratory. (1) (S) Prerequisites: CHEM 1251 and 1251L. Prerequisite or corequisite: CHEM 1252. Continuation of CHEM 1251L. One three-hour laboratory per week. (Credit will be given for only one course: 1112L, 1204L, or 1252L.) (*Fall, Spring, Summer*) (*Evenings*)

CHEM 1253L. Introduction to Modern Laboratory Methods. (1) (S) Prerequisite or corequisite: CHEM 1252. For students planning to take additional chemistry courses; can be substituted for the 1252L requirement for all degrees in Chemistry. Open-ended studies on topics compatible with CHEM 1252 lecture materials. A quasi-research approach is used, involving modern instrumentation extensively. The background needed to utilize microcomputers in data acquisition and data reduction is presented. One three-hour laboratory per week. (*Spring*)

CHEM 2125. Inorganic Chemistry. (3) Prerequisite: CHEM 1252 with a grade of *C* or better. Descriptive inorganic chemistry including acid-based and non-aqueous solvent concepts. (*Spring*)

CHEM 2131. Organic Chemistry. (3) Prerequisite: CHEM 1251 and 1252, each with a grade of *C* or better. Descriptive principles and techniques of organic chemistry and their applications to reactions of aliphatic and aromatic compounds and natural products. (*Fall, Spring, Summer*)

CHEM 2131L. Organic Chemistry Laboratory. (1) Prerequisites: CHEM 1251, 1251L, 1252, 1252L, each with a grade of *C* or better. Prerequisite or corequisite: CHEM 2131 with a grade of C or better. Laboratory investigations into the physical and chemical properties of organic compounds. One laboratory period of three hours per week. (*Fall, Spring, Summer*)

CHEM 2132. Organic Chemistry. (3) Prerequisite: CHEM 2131 with a grade of *C* or better. Continuation of CHEM 2131. Three lecture hours and one Problem Session hour per week. (*Fall, Spring, Summer*)

CHEM 2132L. Organic Chemistry Laboratory. (1) Prerequisite: CHEM 2131L with a grade of *C* or better. Prerequisite or corequisite: CHEM 2132. Continuation of CHEM 2131L. One laboratory period of three hours per week. (*Fall, Spring, Summer*)

CHEM 2136L. Organic Chemistry Laboratory. (1) Prerequisite or corequisite: CHEM 2132. Laboratory investigation involving a research-type project in lieu of CHEM 2132L. Available only upon departmental invitation. (*On demand*)

CHEM 2141. Survey of Physical Chemistry. (3) Prerequisites: CHEM 1252, 1252L with grades of *C* or better, MATH 1120 or one semester of calculus (high school or higher), PHYS 1101 or one semester of physics (high school or higher). A course designed for students in the life sciences or others desiring a one-semester survey of the physical aspects of chemistry. Application of thermodynamics to chemical reactions, energy transfer processes, and chemical and physical equilibria; the study of reaction rates and mechanisms; structure of gases, liquids, and solids; molecular structure and spectroscopy. (*Spring*)

CHEM 3090. Special Topics in Chemistry. (1-4) Prerequisite: consent of Department. Topics chosen from analytical, biochemistry, inorganic, organic, and physical chemistry. May be repeated for credit. Lecture and/or laboratory hours will vary with the nature of the course taught. (*On demand*)

CHEM 3111. Quantitative Analysis. (4) Prerequisites: CHEM 1252, 1252L with grades of *C* or better. Introductory to quantitative and analytical chemistry. Principles of equilibrium, classical and simple instrumental approaches are considered. Two lecture hours and two laboratory periods of three hours each week. (*Fall*)

CHEM 3112. Modern Separation Techniques. (4) Prerequisites: CHEM 2131, 2131L and 3111 with grades of *C* or better. A theoretical and application course in modern separation techniques with emphasis on liquid and gas

chromatography. Two lecture hours and two laboratory periods of three hours each week. *(Spring) (Alternate years)*

CHEM 3113. Survey of Instrumental Methods of Analysis. (4) Prerequisites: CHEM 3111 with a grade of *C* or better. Methods of instrumental analysis with emphasis on sample handling, instrument parameters, data handling, and trouble-shooting in various areas that include Potentiometry, Spectroscopy, Mass Spectrometry, and Chromatography. Either CHEM 3113 or 3112, but not both, may be used to meet requirements for the B.A. degree. Credit will not be given for both CHEM 3113 and 4111. Two lecture hours and two three-hour laboratory periods per week. *(Spring)*

CHEM 3141. Physical Chemistry. (3) Prerequisites: CHEM 1252, 1252L with a grade of *C* or better; MATH 1241 and 1242; PHYS 2102 and 2102L. Prerequisite or corequisite: At least one of the following: MATH 2241, 2242, 2164, 2171, 3125, or a Department-approved mathematics course. Quantum chemistry, atomic and molecular structure, spectroscopy. (*Fall*)

CHEM 3141L. Physical Chemistry Laboratory. (1) Prerequisite or corequisite: CHEM 3141. Experiments in laser spectroscopy, quantum mechanics, kinetics, and thermodynamics. One laboratory period of three hours per week. (*Fall*)

CHEM 3142. Physical Chemistry. (3) Prerequisites: CHEM 1252, 1252L with a grade of *C* or better; MATH 1241 and 1242; PHYS 2102 and 2102L. Prerequisite or corequisite: At least one of the following: MATH 2241, 2242, 2164, 2171, 3125, or a department-approved mathematics course. Kinetic theory of gases, statistical and classical thermodynamics, kinetics. (*Spring*)

CHEM 3142L. Physical Chemistry Laboratory. (1) Prerequisite: CHEM 3141L with a grade of *C* or better. Prerequisite or corequisite: CHEM 3141 or 3142. Continuation of CHEM 3141L. One laboratory period of three hours per week. (*Spring*)

CHEM 3197. Internship in Community Education and Service. (1-3) Prerequisites: Junior standing, acceptance into the program, and approval of Department. A project-oriented, service learning internship with a cooperating community organization. (Credit toward the B.A. and B.S. degrees in Chemistry will not be given.) May be repeated for credit with Department permission. Offered on a *Pass/No Credit basis* only. (*On demand*)

CHEM 3500. Chemistry Cooperative Education Experience. (0) Prerequisites: Junior standing, chemistry through 2132 and acceptance into the Cooperative Education Program. Enrollment in this course is required for chemistry majors during each semester or summer when they are working on a co-op assignment. May be repeated. Evaluation is S/U. (*On demand*)

CHEM 3695. Chemistry Seminar. (1) (W) Introduction to typical search methods, including computer searching, for the chemical reference works and chemical literature. Use of these search techniques for background development. Writing short papers on assigned topics in journal format. One three-hour laboratory session per week. (*Spring*)

CHEM 4090. Special Topics in Chemistry. (1-4) Prerequisite: consent of the instructor. Selected topics in chemistry. Lecture and/or laboratory hours will vary with the nature of the course taught. May be repeated for credit. *(On demand)*

CHEM 4095. Topics for Teachers. (1-4) Prerequisite: Consent of instructor. Selected topics in chemical education. Lecture and/or laboratory hours will vary with the nature of the course taught. May be repeated for credit. *(On demand)*

CHEM 4111. Instrumental Analysis. (4) Prerequisites: CHEM 3111, 3141, 3141L with a grade of *C* or better. Selected modern instrumental methods of analysis, including theory and practice, with considerable attention given to the instrument and elementary electronics involved in the techniques. Two lecture hours and six hours of lab per week. (*Spring*)

CHEM 4121. Advanced Inorganic Chemistry. (4) Prerequisites: CHEM 3142, 3142L with a grade of *C* or better. Theoretical inorganic chemistry including the application of physicochemical principles to the study of inorganic systems. Laboratory work involves inorganic preparations and characterization techniques. Three lecture hours and one laboratory period of three hours a week. (*Fall*)

CHEM 4133. Methods of Organic .Structure Determination. (2) Prerequisites: CHEM 2132, 2132L with grade of *C* or better. Study and application of modern techniques, primarily spectroscopy, to determine the structure of organic molecules. One hour of lecture and one laboratory period of three hours each week. (*Spring*)

CHEM 4134. Organic Reaction Mechanisms. (2) Prerequisites: CHEM 2132, 2132L with grade of *C* or better. Mechanistic and theoretical topics which are beyond the scope of CHEM 2131/2132, including orbital symmetry control of organic reactions, the Hammett Equation and other linear free energy relationships, heterocyclic compounds, polycyclic aromatic compounds, organic photochemistry, carbines, nitrenes, arynes and other short lived, reactive intermediates. (*Spring) (Alternate years*)

CHEM 4135. Concepts and Techniques in Organic Synthesis. (2) Prerequisite or corequisite: CHEM 4133. Modern techniques of organic synthesis. Laboratory includes one or more multi-step syntheses of complex molecules. One hour of lecture and one laboratory period of three hours each week. (*Spring) (Alternate years*)

CHEM 4165. Principles of Biochemistry I. (3) Prerequisite: CHEM 2132 with a grade of *C* or better. A study of the structures, properties, and functions of biological molecules, bioenergetics of biological reactions, and enzyme catalysis, with particular emphasis on the underlying chemical principles, including thermodynamics and kinetics. (*Fall*)

CHEM 4165L. Principles of Biochemistry I Laboratory. (1) Prerequisite: CHEM 2132L with a grade of *C* or better. Prerequisite or corequisite: CHEM 4165. Physical properties of biological molecules and an introduction to experimental techniques of biochemical research. Eleven four-hour lab periods. (*Fall*)

CHEM 4166. Prineiples of Biochemistry II. (3) Prerequisite: CHEM 4165 with a grade of *C* or better. A study of various metabolic pathways and information transfer, including molecular aspects of cell biology and genetics, with particular emphasis on the underlying chemical reactions, including thermodynamics and kinetics. (*Spring*)

CHEM 4167. Structure and Mechanism in Protein Chemistry (3) Prerequisites: CHEM 4165, and either CHEM 4166 or BIOL 4171, or consent of the instructor. Examination of structures, properties, and functions of proteins, enzyme catalysis, and bioenergetics, emphasizing underlying mechanistic chemical and biochemical principles. *(Spring) (Alternate years)*

CHEM 4171. Biochemical Instrumentation. (4) Prerequisites: CHEM 4165 and 4165L with a grade of *C* or better or the consent of the Department. Modern instrumental methods used in biorelated areas such as biochemistry, biotechnology, and medical technology. Theory and practice. Potentiometry, spectrophotometry, chromatography, sedimentation, and electrophoresis. Two lecture hours and two three-hour laboratory periods per week. (*Spring*)

CHEM 4175. Physical Biochemistry. (3) Prerequisites: CHEM 4165, 4165L, 4166, and 3141 with a grade of *C* or better. Colloid systems, equilibria in biological fluids, mass and energy transport in fluids and in association with membranes, energy storage and dissipation with relation to specific chemical bonding, enzyme kinetics. (*On demand*)

CHEM 4185. Chemical Fate of Pollutants. (3) Prerequisites: Senior or Graduate Standing and CHEM 2132. Chemical reactivity and fate of pollutants (in air, water, soil) in terms of their chemical structure and energetics, mechanisms, structure/energy relationships and their interaction with reactive environmental species including light. *(Spring) (Alternate years)*

CHEM 4200. Computational Chemistry. (4) Prerequisite (BA): CHEM 2125 or 2141 or consent of instructor. Prerequisite or corequisite (BS and MS): CHEM 3141 or consent of instructor. Electronic and molecular mechanics-based computational methods, including properties, optimized equilibrium and transition state structures and potential energy surfaces of reactions. Three lecture hours and three hours of laboratory each week. Additional projects required of graduate students. *(Fall, Spring)*

CHEM 4695. Chemistry Seminar. (1) (W,O) Prerequisite: CHEM 3695 and senior standing. Discussion of recent developments and special topics in chemistry. Written and oral reports are required. B.A. chemistry majors may repeat for credit. (Fall, Spring)

CHEM 4696. Chemistry Seminar. (1) (W) (O) Prerequisite: CHEM 3695, CHEM 4695, B.S. chemistry major, and senior standing. Discussion of recent developments and special topics in chemistry. Written and oral reports are required. (Fall, Spring)

CHEM 4900. Directed Undergraduate Research. (1-4) Prerequisite: consent of the instructor overseeing the research. Independent study and research in any of these fields of chemistry: organic, physical, analytical, inorganic chemistry or biochemistry. Hours for laboratory and library work to be determined. May be repeated for credit. (*Fall, Spring, Summer*)

CHILD AND FAMILY DEVELOPMENT (CHFD)

CHFD 2111. Child Study: Interpreting Children's Behavior. (3) Growth of individuals and the forces which influence this growth. Current theories of child development with emphasis on the complex interaction between heredity and environmental factors. *(Fall, Summer)*

CHFD 2113. Infant and Early Years. (3) Examination of development from its beginnings to early childhood with emphasis on theories, research, and other data relative to infancy and the early years and implications for curriculum design. *(Fall, Summer)*

CHFD 2114. Foundations of Preschool Education. (3) Strategies for program analysis, design, implementation, and evaluation of programs for infants and young children. *(Fall)*

CHFD 2115. Education of the Young Child. (3) Developmental needs of children as related to group care situations, curriculum decisions, and the design of early learning environments. Emphasis on current issues, the role of the caregiver (parent and/or teacher), and the process of guiding and teaching young children. (Designed to complement Practicum II.) *(Spring)*

CHFD 2412. Practicum I: Observing and Recording Children's Behavior. (2) Investigates the purposes and methods of observation of young children. Content includes observational activities, actual and simulated, individual and group. Students will observe, record, and analyze children's physical-motor, social, emotional, moral, and cognitive development using developmental theory. (Designed as the Field Study for CHFD 2111.) *(Fall)*

CHFD 2416. Practicum II: The Child and the Community. (2) A supervised practicum with placements in settings depicting care and educational learning experiences for children. Emphasis on program components, the evaluation and development of materials and practices for care and education. Students spend two half-days per week in placement. (Designed as the Field Study for CHFD 2115.) *(Spring)*

CHFD 3113. Parent Education. (3) An emphasis on communication, home-school partnerships, family dynamics, and the community/school relationship. *(Spring, Summer)*

CHFD 3115. Learning and Development. (3) Examination of the relationship of learning and development with emphasis on conceptualizing child development and interpreting data related to growth and development. Specific attention to the affective, cognitive, and psychomotor domains and theories as seen in a multicultural context. *(Fall, Spring, Summer)*

CHFD 3410. Student Teaching/Seminar: B-K Child and Family Development. (15) (O) Prerequisites: Approval of

an Application for Student Teaching. Planned sequence of experiences in the student's area of specialization conducted in an approved setting under the supervision and coordination of a University supervisor and a cooperating teacher. Student must demonstrate the competencies identified for the B-K teaching field. Approximately 35-40 hours per week in an assigned school setting and 10-12 on-campus seminars scheduled throughout the semester. *(Spring)*

CHFD 3412. The Family and the Community (Birth to 3 Years). (2) Influence of family and community on the development of infants and young children in the first three years of life is investigated through field-based experiences. Students complete an intensive internship in settings with children of typical and atypical ability. Family contact and parent interaction are emphasized. *(Fall)*

CHFD 3416. Internship in Child and Family Development. (12) Intensive work with children and families in the field planned by student and advisor with focus on integration of theory and practice. *(Spring)*

CHFD 3619. Senior Seminar in Child and Family Development. (3) (O) A synthesizing course of study focusing on review, compilation, analysis, and evaluation of the literature, research, and experiences relevant to the student's area of focus. Students will present a plan of action/study for approval prior to registration for this semester. *(Spring)*

CHFD 3800. Individual Study in Child and Family Development. (1-6) Prerequisite: Permission of the student's advisor. Independent study under the supervision of an appropriate faculty member. May be repeated for credit. *(Fall, Spring, Summer)*

CHFD 4000. Topics in Child and Family Development. (1-6) May include classroom and/or clinical experiences in the content area. With Department approval, may be repeated for credit for different topics. *(Fall, Spring, Summer)*

CHINESE (CHNS)

CHNS 1201. Elementary Chinese I. (4) Fundamentals of the Chinese language, including speaking, listening comprehension, reading, and writing. (*Fall*)

CHNS 1202. Elementary Chinese II. (4) Prerequisite: CHNS 1201 or permission of the Department. Fundamentals of the Chinese language, including speaking, listening comprehension, reading, and writing. (*Spring*)

CHNS 2201. Intermediate Chinese I. (4) Prerequisite: CHNS 1202 or permission of the Department. Review of grammar, with conversation and composition. (*On demand*)

CHNS 2202. Intermediate Chinese II. (4) Prerequisite: CHNS 2201 or permission of the Department. Continued review of grammar, conversation, and composition. (*On demand*)

CRIMINAL JUSTICE (CJUS)

CJUS 1100. Introduction to Criminal Justice. (3) (C) Components of the criminal justice system are reviewed and their interrelatedness assessed; law enforcement, corrections and courts discussed; studies of the functions of the system reviewed. (*Fall, Spring*)

CJUS 2000. Introduction to Law Enforcement. (3) Critical examination of policing in terms of the past and present structures, methods, ethics, legal framework, and operations typical of contemporary American law enforcement agencies. *(Yearly)*

CJUS 2102. Ethics and the Criminal Justice System. (3) (V) The study of applied and professional ethics and ethical issues in the administration of justice. (*On demand*)

CJUS 2120. Juvenile Justice. (3) Intensive analysis of the administration of juvenile justice within the United States. Particular emphasis on decision making and procedures of police, courts, and correctional agencies for juveniles. (*On demand*)

CJUS 2154. Introduction to Corrections. (3) An overview of community and institutional corrections in the U.S. such as jails, probation, alternatives to incarceration, correctional institutions, treatment strategies, and parole. *(Yearly)*

CJUS 3000. Topics in Criminal Justice. (3) Prerequisite: CJUS 1100. Specialized criminal justice topics. May be repeated for credit. *(On demand)*

CJUS 3100. Criminal Justice Theory. (3) Theory construction methods; tests of theories; criminological and criminal justice system theory. (*Fall, Spring*)

CJUS 3101. Research Methods in Criminal Justice. (4) Prerequisite: junior standing and STAT 1222. Research designs, data collection, and data analysis relevant to criminal justice. (*Fall, Spring*)

CJUS 3102. American Criminal Courts. (3) Prerequisite: CJUS 1100. Analysis of the court component of criminal justice with emphasis on social science literature concerning prosecutors, defense attorneys, judges, juries, and court reform policies. (*On demand*)

CJUS 3110. Criminal Justice and the Law. (3) Nature and development of criminal law including the concepts of criminal liability, responsibility, and capacity; comprehensive analysis of the various crimes against persons, property, and morality. (*On demand*)

CJUS 3111. Criminal Procedure. (3) Examines the rules that govern everyday operation of the criminal justice system from investigation to appeal. *(On demand)*

CJUS 3120. The Juvenile Offender. (3) Measurement of juvenile delinquency, explanations of delinquent behavior and policies intended to both prevent and respond to delinquent behavior. *(On demand)*

CJUS 3121. Juvenile Law. (3) Statutory and case law relating to juveniles with special emphasis on the North Carolina Juvenile Code. (*On demand*)

CJUS 3130. The Administration of Criminal Justice. (3) (W,O) Examines major organizational theories and administrative functions with direct application to criminal justice agencies. *(Yearly)*

CJUS 3132. Interviewing in Criminal Justice. (3) (O) This course examines the interpersonal dynamics, theories, empirical research, and legal basis of the investigative interview necessary for the criminal justice professional. Special emphasis will be given to the establishment of rapport, the process of inquiry, the evaluation of response, cultural and age differences, and the need to remain within the legal bounds of the U.S. Constitution. *(Yearly)*

CJUS 3141. Law Enforcement Behavioral Systems. (3) Current issues in law enforcement. Specific topics include: community relations, stress, the use of force, and the effect of culture on law enforcement. (*on demand*)

CJUS 3150. Community Corrections. (3) Structure, functions, and effectiveness of community corrections. Emphasis on the deinstitutionalization movement, community-based treatment centers, community service agencies, work release programs, and current trends in community corrections. (*On demand*)

CJUS 3151. Institutional Corrections. (3) Structure, functions, and effectiveness of correctional institutions. Emphasis is on the history of corrections, classification of offenders, institutionalization, treatment programs, juvenile training schools, and the future of corrections. (*On demand*)

CJUS 3152. Correctional Law. (3) Development, substance and operationalization of the law of corrections.(*Alternate years*)

CJUS 3153. Juvenile Corrections. (3) Examination of community-based and institutional correctional programs for juveniles and analysis of the effectiveness of these programs. *(On demand)*

CJUS 3200. Security and Loss Prevention. (3) Overview of the field of private security and loss prevention with emphasis on current legislation, loss prevention, risk management, and security countermeasures. (*Yearly*)

CJUS 3210. Problems and Decisions in Criminal Justice. (3) (W) Prerequisites: Junior standing and consent of the Department. Evaluation of criminal justice policy and decision-making. (*On demand*)

CJUS 3220. The Criminal Offender. (3) Examines the research, theory, and practice of criminal behavior focusing primarily on interaction of the offender with social-environmental factors. (*On demand*)

CJUS 3400. Criminal Justice Practicum. (1-6) Prerequisite: CJUS 1100 and consent of the Department and criminal justice agency. Supervised experience in a criminal justice agency. May be repeated for credit up to a maximum of 12 hours but with no more than six hours counting toward the major. *(Fall, Spring)*

CJUS 3800. Directed Individual Study. (1-4) Prerequisite: junior standing and consent of the Department. Special problems. May be repeated for credit. *(Pass/No Credit grading) (Fall, Spring)*

CJUS 4000. Topics in Criminal Justice. (1-6) Prerequisite: consent of the Department. Specialized criminal justice topics. May be repeated for credit. *(Pass/No Credit grading* when taught as "Movies and the Portrayal of Crime and Justice.") (*Fall, Spring*)

CJUS 4101. Drugs, Crime and the Criminal Justice System. (3) Use of drugs and their relationship to crime, including the impact of drugs on the individual and the criminal justice system. (*On demand*)

CJUS 4103. International Criminal Justice. (3) Prerequisite: junior standing. Examination of the criminal justice systems of the United States and other nations. (*On demand*)

CJUS 4160. Victims and the Criminal Justice System. (3) Relationship between victims of crime and the criminal justice system. Specific topics include an analysis of the characteristics of crime victims, victim reporting and nonreporting patterns, treatment of victims by the various segments of the criminal justice system, victim assistance programs and the issue of compensation and/or restitution for victims of crime. *(On Demand)*

CJUS 4161. Violence and the Violent Offender. (3) Issues surrounding violence in today's society and their impact on offenders involved in homicide, child and domestic abuse, and other forms of violence. Examination of myths about violence, victim-offender characteristics and relationships, and theories of violence. *(On demand)*

CJUS 4162. Seminar on Sexual Assault. (3) (O) This course provides a comprehensive and systematic, critical examination of sexual exploitation in the United States. Topics include: historical and legal perspectives; theories of causation; empirical evidence and practical policy implications in the areas of rape, child sexual abuse, and incest; domestic violence; pornography; sexual harassment, nuisance and dangerous obsessions; and serial killing. A reliance on guest speakers at the local, state, national and international levels greatly diversify this course *(Yearly)*

CJUS 4400. Research Practicum. (3) (3G) Prerequisites: CJUS 3100 and CJUS 3101. Development, analysis and presentation of independent research under the supervision of a faculty member. Graduate students are encouraged to register for CJUS 6800. *(Fall, Spring, Summer)*

COMMUNICATION STUDIES (COMM)

COMM 1101. Introductory Speech. (3) (O) For students who want to upgrade their oral communication skills. Opportunity to study theory and practice of public speaking. Special emphasis placed on constructing and delivering speeches. *(Fall, Spring, Summer) (Evenings)*

COMM 1107. Introduction to Communication Contexts. (3) A survey of the nature and practice of communication in interpersonal, small group, intercultural, organizational, public relations, and mass communication contexts. *(Summer only)*

COMM 2100. Introduction to Communication Theory. (3) Introduces students to traditional and contemporary theories about human communication processes including the nature of theory building, and major theoretical developments within the field of communication. *(Fall, Spring)*

COMM 2101. Introduction to Rhetorical Theory. (3) Evolution of rhetorical theory from ancient to modern times and examination of major rhetorical theorists. Emphasis on using rhetorical theory to better understand contemporary persuasive messages. *(Fall, Spring)*

COMM 2102. Advanced Public Speaking. (3) Prerequisite: COMM 1101 or permission of the instructor. Advanced theory and practice of speaking in public. Research, composition, and delivery of various types of speeches and presentations. *(Spring)*

COMM 2103. Argumentation and Debate. (3) Introduction to the basic theory and skills of argumentation and debate. Assumptions of argumentation, evidence, reasoning, argument construction, cross-examination, refutation, and ethics included. *(Fall)*

COMM 2105. Small Group Communication. (3) Principles of discussion and deliberation in small groups. Practice in organizing, leading, and participating in various forms of group communication. Emphasis on problem solving and leadership skills. *(Fall, Spring, Summer)*

COMM 2107. Interpersonal Communication. (3) Study of the dynamics of one-to-one human communication. The relation of language to human communication, perception and reality, self-concept, nonverbal communication codes, development of trust and self-disclosure, and development of positive communication style. *(Fall, Spring)*

COMM 2120. Black Images in the Media. (3) Examination of African-American images projected through electronic and print media, historically and currently. Cross-listed with AAAS 2105. *(Yearly)*

COMM 3050. Topics in Communication Studies. (3) Prerequisite: COMM 1101. Timely and important areas relevant to communication studies. May be repeated for credit with permission of the major advisor. *(On demand)*

COMM 3100. Communication Research Methods. (3) Prerequisites: COMM 2100 and STAT 1222. Methods for systematic investigation of communication behavior in all primary communication contexts, including utilization of library materials and quantitative and qualitative techniques for data analysis. *(Fall, Spring)*

COMM 3101. Persuasion. (3) Prerequisite: COMM 2101. Emphasis on the theory and practice of persuasion. Topics include attitude modification, theories of persuasion, source credibility, persuasive strategies, ethics, and audience analysis. *(Fall, Spring)*

COMM 3120. Communication and Mass Media. (3) A survey of the function and history of print and electronic media as forms of communication, their influence upon society, and the legal and economic environments in which they operate. *(Fall, Spring)*

COMM 3121. Mass Communication and Society. (3) Examines important issues involving mass communication. Critical study of the effect mass communication exacts on society. *(On demand)*

COMM 3130. Communication and Public Advocacy. (3) Examination of how symbols are used in public advocacy from both applied and theoretical perspectives with emphasis on rhetorical uses of language and non-verbal symbols in the creation and transmission of public messages. *(Fall, Spring)*

COMM 3131. African-American Oratory. (3) Oratory by African-Americans using in-depth study of speech texts and video and general rhetorical principles to examine historic as well as lesser known speeches. *(On demand)*

COMM 3141. Organizational Communication. (3) Examines the importance of the operation of communication processes within organizations and between organizations and their environments. *(Fall, Spring)*

COMM 3145. Foundations of Public Relations. (3) Prerequisite: JOUR 2160. Familiarize students with basic concepts and principles of public relations within the context of communication theory. Acquaints students with the history, functions, roles, social contexts, tools, techniques, and strategies of the profession. *(Fall, Spring)*

COMM 3245. Public Relations Writing. (3) Prerequisite: COMM 3145. Instruction and writing practice designed to develop the professional-level writing skills expected of entry-level public relations practitioners. Extensive writing exercises in preparing plans, releases, newsletters, brochures, web pages, media kits and other public relations products. Individual and group projects required. (Fall, Spring)

COMM 3403. Debate Practicum. (2) Prerequisites: COMM 2103 or equivalent and permission of instructor. Application of debate principles and practices as a member of UNC Charlotte Debate Team. Research, argument construction and tournament competition required. Can be repeated four times. No more than four hours of COMM 3403 may be used toward requirements for the minor. *(Fall, Spring)*

COMM 3880. Independent Study. (1-3) Prerequisites: COMM 1101, permission of instructor and major advisor. Area of study beyond the scope of current offerings to be devised by student and faculty member. May be repeated. Three hours of COMM 3880 may be used toward the minor with prior approval of the Departmental Chairperson. *(Fall, Spring, Summer)*

COMM 4101. Media and the Law. (3) Prerequisite: At least junior standing or consent of instructor. Survey of legal rights, restrictions, and ethical considerations in field of communication including the First Amendment, libel,

invasion of privacy, obscenity law, regulation of electronic media, relationships between media and judiciary. *(Fall, Spring)*

COMM 4102. Federal Interpretation of the First Amendment. (3) (3G) Prerequisite: At least junior standing or consent of instructor. In-depth case analysis of tests determining Constitutional boundaries of expression, including clear and present danger, prior restraints, fighting words/symbolic speech, strict scrutiny, obscenity, indecency. (Cross listed with POLS 3102.) *(On demand)*

COMM 4141. Advanced Organizational Communication. (3) Prerequisite: COMM 3141. Critical examination of the communication practices of organizations which accomplish such tasks as establishing organizational identification, influencing organizational members, and making decisions. Includes application of research methods to assess and analyze an organization's communication practices. *(Spring)*

COMM 4145. Public Relations Lab. (3) Prerequisites: COMM 3145 and 3245. Lectures, workshops, and guest speakers provide knowledge to enable students to research, design, implement, and complete public relations projects for community-based, not-for-profit organizations. The class is structured and run in a manner similar to a professional public relations agency with students assuming appropriate agency roles. May be repeated once. *(Fall, Spring)*

COMM 4410. Professional Internship. (3 or 6) Prerequisites: Junior or Senior standing, Communication Studies majors or minors, Journalism minors, 2.0 GPA in all course work in the major or minor. Students work 8-10 hours per week (total 120 hours per semester) for 3 credit hours, or 16-20 hours (total 240 hours per semester) for 6 credit hours in an approved placement. With permission of the students advisor and the Communication Studies Internship Coordinator, the course may be repeated for credit in a different internship placement. *(Pass/No Credit) (Fall, Spring, Summer)*

DANCE (DANC)

DANC 1101. Dance: A Cultural Reflection. (3) (A) An exploration of the similarities among selected folk and ethnic dance traditions from around the world in terms of functionality; how 20th century American concert dance, social dance, and popular entertainment dance reflect those traditions; socio-political issues evidenced in choreography through lectures, discussion, film video, and live dance performance. *(Fall, Spring)*

DANC 1103. Introduction to Dance. (1) Prerequisite: Non-majors only. Studio experience with movement characteristics of ballet, modern dance, and jazz dance for the beginner. Three contact hours. *(On demand)*

DANC 1201. Contemporary Dance Techniques, Style and Theory I. (4) Prerequisite: Dance major or minor or permission of instructor. Movement training, including ballet and modern dance and incorporating basic principles of anatomy and kinesiology. *(Spring)*

DANC 1202. Contemporary Dance Technique, Style and Theory II. (4) Prerequisite: DANC 1201, or consent of instructor. Continuation of DANC 1201 which incorporates basic music fundamentals and materials for dancers. *(Fall)*

DANC 1212. Ballet I. (2) Fundamentals of ballet technique, barre and floor work. May be repeated for credit. Three contact hours. (*Fall, Spring*) (*Evenings*)

DANC 1213. Ballet II. (2) Prerequisite: DANC 1212 or consent of instructor. Continuation of DANC 1212. May be repeated for credit. Three contact hours. (*Fall, Spring) (On demand*)

DANC 1214. Modern Dance I. (2) Combination of improvisation, elementary modern styles. May be repeated for credit. Three contact hours. (*Fall, Spring) (Evenings*)

DANC 1215. Modern Dance II. (2) Prerequisite: DANC 1214 or consent of instructor. Continuation of DANC 1214. May be repeated for credit. Three contact hours. *(Fall, Spring, on demand)*

DANC 2201. Contemporary Dance Technique, Style and Structure III. (3) Prerequisite: DANC 1202, or consent of instructor. Higher level movement training which includes ballet and modern dance. Six contact hours. *(Spring)*

DANC 2202. Contemporary Dance Technique, Style and Structure IV. (3) Prerequisite: DANC 2201 or consent of instructor. Continuation of DANC 2201. May be repeated for credit with not more than six hours applied toward required dance electives. Six contact hours. *(Fall)*

DANC 2216. Elements of Dance Composition. (3) Prerequisites: DATH 1100, 1200, and DANC 1201, or consent of instructor. Exploration of fundamental elements and concepts for composing dance, dance/theatre, and performance art works. Four contact hours. *(Spring)*

DANC 2222. Ballet III. (2) Prerequisite: DANC 1213 or consent of instructor. Intermediate ballet; barre and centerwork. May be repeated for credit. Three contact hours. (*Spring*)

DANC 2223. Ballet IV. (2) Prerequisite: DANC 2222 or consent of instructor. A continuation of DANC 2222. May be repeated for credit. Three contact hours. (*Fall*)

DANC 2224. Modern Dance III. (2) Prerequisite: DANC 1215 or consent of instructor. Intermediate modern dance technique. May be repeated for credit. Three contact hours. (*Spring*)

DANC 2225. Modern Dance IV. (2) Prerequisite: DANC 2224 or consent of instructor. A continuation of DANC 2224. May be repeated for credit. Three contact hours. (*Fall*)

DANC 2226. Jazz Dance I. (2) Traditional jazz dance style. May be repeated for credit. Three contact hours. (*Fall, Spring*)

DANC 2227. Jazz Dance II. (2) Contemporary jazz dance styles. May be repeated for credit. Three contact hours. *(Fall, Spring)*

DANC 3001. Topics in Dance. (1-3) Special topic in dance. May be repeated for credit with change in topic. Two to six contact hours. (*On demand*)

DANC 3101. Dance History I. (3) (A) Historical and cultural influences affecting the development of dance in the 20th century. *(Fall) (Alternate years)*

DANC 3102. Dance History II. (3) (A) Historical and cultural developments of theatrical dance from the Renaissance to the 20th century. *(Spring) (Alternate years)*

DANC 3110. Dance Criticism. (3) (W) Prerequisite: DANC 1101 or DANC 3101. Twentieth century dance forms are used as a basis for discussion and written commentary. *(Spring) (Alternate years)*

DANC 3201-3202. Professional Training Certificate in Dance. (8) Prerequisite: Audition and DANC 2201 or permission of Department Chair. Both courses must be taken sequentially during the same academic year. First year of a two-year program of pre-professional technical dance training in ballet, performance experience, and professional dance company observation with the North Carolina Dance Theatre. Emphasis on adagio vocabulary and partnering skills. *(Fall, Spring)*

DANC 3227. Dance Education Methods I. (3) Prerequisites: DANC 1202 or consent of instructor. Corequisite: DANC 3227L. Creative movement theories; techniques and skills for teaching the elementary school child. (*Fall*)

DANC 3227L. Elementary Clinical Experience. (1) Corequisite DANC 3227. Observation and teaching in an elementary school setting. Application of methodologies introduced in DANC 3227. (2 contact hours)*(Fall)*

DANC 3230. Choreography. (3) Prerequisites: DANC 2201, 2216. Methods and sources for dance composition, culminating in creative experience. Four contact hours. *(Fall)*

DANC 3257. Dance Education Methods II. (3) Prerequisite: DANC 1202 or consent of instructor. Corequisite: DANC 3257L. Experiences in techniques for teaching dance in secondary schools. (*Spring*)

DANC 3257L. Secondary Clinical Experience. (1) Corequisite: DANC 3257. Observation and teaching in a secondary school setting. Application of methodologies introduced in DANC 3257. (2 contact hours) *(Spring)*

DANC 3400. Internship in Dance. (3-6) Prerequisite: GPA of at least 2.5, junior status, and permission of Department Chair. Research and/or in-service training for Dance majors and minors in cooperating organizations. Specific content based upon a contract between the student, department, and professional organization. Graded on a Pass/Fail basis. *(Fall, Spring, Summer)*

DANC 3467. Student Teaching/Seminar: K-12 Fine and Performing Arts: Dance. (15) Prerequisite: approved application for student teaching; senior status; completion of professional education requirements; grades of *C* or better in all courses required for licensure. Corequisite: enrollment only in student teaching. A planned sequence of experiences in the student's area of specialization conducted in an approved school setting under the supervision and coordination of a University supervisor and a cooperating teacher in which the student demonstrates the competencies identified for his/her specific teaching field in an appropriate grade level setting. *(Fall, Spring)*

DANC 3601. Individual Project. (3) Prerequisite: Permission of Department Chair. May be repeated for credit. *(Fall, Spring, Summer)*

DANC 3691. Individual Project. (6) Prerequisite: Permission of Department Chair. May be repeated for credit. *(Fall, Spring, Summer)*

DANC 4201-4202. Professional Training Certificate in Dance. (8) Prerequisite: DANC 3202 and audition or permission of Department Chair. Both courses must be taken sequentially during the same academic year. Continuation of DANC 3201-3202 with emphasis on allegro vocabulary, technical precision of complex combinations and advanced performance work, culminating on the undergraduate "Professional Training Certificate in Dance."

DANCE AND THEATRE (DATH)

DATH 1100. Exploration of Voice and Movement. (3) (O) Creative and effective communication of ideas through the use of the body and voice. Will include physical and vocal technique, improvisation and group problem solving. Four contact hours. *(Fall, Spring)*

DATH 1200. Elements of Design for the Stage. (3) Elements and principles of design in relation to the performer, performance and performance space with emphasis on developing perceptual and communication skills through exposure to and analysis of a diverse selection of dance, theatre, and related-performance images. *(Spring)*

DATH 1600. Cornerstone Seminar. (1) Prerequisite: Restricted to dance and theatre majors and minors or permission of instructor. Reading, viewing, writing and discussion focusing on the functions of dance and theatre within society including contemporary trends and current research/creative activity. Two contact hours. Graded on a Pass/Fail basis. *(Fall)*

DATH 2401. Production Practicum. (1) Practical application of production work in the areas of scenery, lighting, sound, costuming, properties, publicity, box office, house management, and stage management. May be repeated for credit. *(Fall, Spring)*

DATH 2402. Performance Practicum. (1) Prerequisite: Audition. Practical application of performance techniques within a production setting, including auditions, rehearsals, and performances. May be repeated for credit. *(Fall, Spring)*

DATH 3600. Capstone Seminar. (1) Prerequisites: DATH 1600 and senior standing. Synthesis, integration, and application of theoretical and experiential study in dance and

theatre through individual/group designed seminar topic. Investigation and planning for immediate and life-long career options through guest lectures, panel discussions, site visits, presentations, and related mini-projects. Two contact hours. Graded on a Pass/Fail basis. *(Fall)*

ELECTRICAL AND COMPUTER ENGINEERING (ECGR)

ECGR 2103. Computer Utilization in C++. (3) An introduction to the use of computers and computing methods to solve engineering problems. Structure and object-oriented programming design using C++. *(Fall, Spring) (Evenings)*

ECGR 2111. Network Theory I. (3) Corequisite: PHYS 2102 and MATH 2171. Prerequisite: MATH 1242 and PHYS 2101. Introduction to Kirchoff's laws and terminal equations. Circuit analysis techniques and network theorems. Singularity functions and signals. Transient and natural response of first and second order networks. State variable analysis. *(Fall, Spring) (Evenings)*

ECGR 2112. Network Theory II. (3) Prerequisite: ECGR 2111 with a grade of *C* or better and MATH 2171. Continuation of ECGR 2111. Introduction of sinusoidal steady state. Time frequency domain analysis. Power and energy. Two port networks. Fourier series. Introduction to Fourier and Laplace transforms. *(Fall, Spring, Summer) (Evenings)*

ECGR 2155. Logic and Networks Laboratory. (1) (W) Prerequisites: MATH 1241 and 1242. Corequisites: ECGR 2111 and 2181 or permission of Department. Network measurements and applications, experimental logic design; introduction to laboratory equipment and techniques. *(Fall, Spring, Summer) (Evenings)*

ECGR 2156. Instrumentation and Networks Laboratory. (1)(W) Prerequisite: ECGR 2155. Corequisite: ECGR 2112 or permission of Department. Network measurements, applications, and instrumentations. *(Fall, Spring, Summer) (Evenings)*

ECGR 2161. Basic Electrical Engineering I. (3) Corequisite or prerequisite: PHYS 2102. Fundamental concepts and methods of analysis used in electrical engineering. Topics include: terminal characteristics of devices, analysis of D.C. and A.C. circuits, elementary operation of electronic devices. Not open to Electrical Engineering majors. *(Fall) (Evenings)*

ECGR 2181. Logic System Design I. (3) Prerequisite: MATH 1241. Introduction to Boolean algebra; mixed logic; design of combinational circuits; introduction to sequential systems; MSI building blocks; includes laboratory design projects. *(Fall, Spring)*

ECGR 2252. Electrical Engineering Design I. (2) (O) Prerequisites: ECGR 2155 and 2111. Corequisites: ECGR 2112, 2156, and 2181. Introduction to conceptual design; circuit design; parameter sensitivity analysis; cost-performance tradeoff analysis and interconnection compatibility design. A design project completed in a laboratory setting and written technical report and oral presentation of the project are required. *(Fall, Spring)*

ECGR 2255. Digital Design Laboratory. (1) Prerequisites: ECGR 2181. Experiments in Digital Systems Design including the use of Programmable Logic Devices. *(Fall, Spring)*

ECGR 3090. Special Topics in Electrical Engineering. (1-4) Prerequisite: consent of the Department. The course builds upon and synthesizes knowledge from the engineering science, mathematics, and physical sciences stem of the core curriculum. The specific topics teach engineering analysis, synthesis, and design, while simultaneously affording an opportunity for the students to investigate an area of specialization. May be repeated for credit. (*On demand*)

ECGR 3111. Signals and Systems. (3) Prerequisite: ECGR 2112 with a grade of *C* or better. Analysis of networks under transient and steady state conditions. Topological and matrix formulation techniques used in network analysis. Transient and steady state analysis. State variable techniques. Transform methods. Sinusoidal steady state. Network theorems. (*Fall, Spring)*

ECGR 3112. System Analysis II. (3) Prerequisite: ECGR 3111 with a grade of *C* or better. A continuation of ECGR 3111 emphasizing system response characteristics in the frequency domain. Introduction to techniques of analysis of continuous and discrete systems. (*Spring, Summer*)

ECGR 3121. Introduction to Electromagnetic Fields. (3) Prerequisites: ECGR 2112 with a grade of *C* or better and MATH 2241. A study of electric and magnetic fields using the vector formulation. Vector analysis. Electrostatics: potential functions, dielectrics, capacitance, energy, and forces associated with electric fields, solution of Laplace's and Poisson's equations. Magnetostatics: vector potential functions, Lorentz forces, hysteresis, magnetic polarization and induction, and energy. Gauss's, Ampere's, Faraday's laws, etc., leading to the Maxwell's equations. (*Fall, Spring)*

ECGR 3122. Electromagnetic Waves. (3) Prerequisite: ECGR 3121 with a grade of *C* or better. A study of Maxwell's equations, transmission line theory, plane waves in media, propagation of electromagnetic waves in various media. The phenomena of reflection and refraction at interfaces of two dissimilar materials. Guided electromagnetic waves in coaxial cables and waveguides. (*Spring, Summer)*

ECGR 3123. Data Communications and Networking. (3) Prerequisites: ECGR 2181, ECGR 2111. An introduction to data communications, including transmission media, signal encoding, link control, and multiplexing. Concepts of networking including protocols, LAN, WAN, and wireless networks (Fall, Spring)

ECGR 3131. Fundamentals of Electronics and Semiconductors. (3) Prerequisite: ECGR 2111 with a grade of *C* or better. Study of the fundamental concepts of the theory and applications of semiconductor devices. Diode characteristics and applications, including clipping and rectifier circuits. Transistor fundamentals. D.C. biasing and

stabilization. Small-signal analysis. Field-effect transistors. Operational amplifier fundamentals. (*Fall, Spring*)

ECGR 3132. Electronics. (3) Prerequisite: ECGR 3131 with a grade of *C* or better. Low and high-frequency analysis of transistor amplifiers. Multistage and feedback amplifier design. Stability and oscillation. Operational amplifier design and applications. (*Spring, Summer)*

ECGR 3133. Solid State Microelectronics I. (3G) Prerequisites: ECGR 3121, 3122, PHYS 4241or permission of Department. Simple crystal structures, energy bands, and charge carriers in semiconductors, distribution functions for photons and electrons, optical and electrical properties, carrier diffusion, generation, and recombination. *(Fall)*

ECGR 3134. Industrial Electronics. (3) Prerequisite: ECGR 3132 with a grade of *C* or better. High power solid state circuits. Topics include choppers, phase controlled rectifiers, triggering devices, inverters and dual converters, limiting and regulating circuits. *(Spring)*

ECGR 3142. Electromagnetic Devices. (3) Prerequisite: ECGR 3121 with a grade of *C* or better. Principles of operation and basic design features of electromechanical energy converters. The role of the magnetic field in transformers and electrical machines. Generation of induced voltages. Electromagnetic torque development. Speed control. Circuit models and machine performance. (*Spring, Summer)*

ECGR 3155. Systems and Electronics Laboratory (1). (W) Prerequisites: ECGR 2112, and 2156. Corequisites: ECGR 3111 and 3131, or permission of Department. Systems and signals measurements and applications; electronic circuits. *(Fall, Spring, Summer) (Evenings)*

ECGR 3156. Electromagnetic and Electronic Devices Laboratory (1) (W) Prerequisite: ECGR 3155. Corequisite: ECGR 3142, 3133, or permission of Department. Measurements and applications of electromagnetic and solid state devices. *(Fall, Spring, Summer) (Evenings)*

ECGR 3157. Electrical Engineering Design II. (2) (O) Prerequisite: ECGR 2112, 2252 and 2181. Corequisite: ECGR 3111 and 3131 or permission of Department. Application of conceptual design; circuit design; parameter sensitivity analysis; cost-performance tradeoff analysis and interconnection compatibility design. A design project completed in a laboratory setting and a written technical report and oral presentation on the project are required. *(Fall, Spring)*

ECGR 3159. Electrical Engineering Professional Practice. (2) Prerequisites: Senior Standing and ECGR 3253. Corequisite: ECGR 3254 or permission of Department. Engineering ethics; safety and liability in the manufacturing workplace; product design; product development; cost estimating for non-recurring engineering work; production planning; Total Quality Management; and effective technical presentation. *(Spring, Summer)*

ECGR 3181. Logic System Design II. (3) Prerequisite: ECGR 2181 with a grade of *C* or better or permission of Department. Digital systems design and test. Top-down design of multi-input based controller systems; programmable devices. (*Spring, Summer)*

ECGR 3182. Digital Electronics. (3) Prerequisites: ECGR 2181 and 3131, both with a grade of *C* or better. Bipolar and field-effect transistors, switching characteristics, device models, logic families. Memory devices, one-shots, Schmitt triggers, logic gates, drivers. Use of logic analyzers. (*Spring, Summer*)

ECGR 3183. Programming Languages. (3) Prerequisite: consent of instructor. Topics include structure of simple statements and algorithmic languages, list processing, manipulation and text editing, linear-time parsers/interpreters/compilers. Emphasis on application of these concepts to engineering systems including programmable logic controllers and mini/micro computers as process controllers. *(On demand)*

ECGR 3199. Professional Development. (O) The purpose of this course is to broaden the student's perception of engineering as a career through participation in various activities related to the engineering profession. Activities consist of attendance at professional society meetings, active participation in student organizations, attendance at visiting lectures and seminars, etc. Course requirements are spread over a two-year period. Students must schedule this course during each of the three semesters prior to their last for zero credit. Satisfactory completion of this course is required for graduation for all Electrical Engineering majors. (*Fall, Spring*)

ECGR 3253. Senior Design I. (2) (W) (O) Prerequisites: for BSEE degree - ECGR 2155, 2156, 3111, 3131, 3155, 3156 with a grade of *C* or better. Prerequisite for B.S.Cp.E. degree – ECGR 2155 and ECGR 2255. Corequisite: senior standing in engineering. A project-oriented course stressing the planning and design of experiments to support the student's project. Formation of the design problem and specifications. *(Fall, Spring)*

ECGR 3254. Senior Design II. (3) (W,O) Prerequisite: ECGR 3253 with a grade of *C* or better. A continuation of ECGR 3253 consisting of project development and analysis, culminating in a written and oral presentation. *(Fall, Spring)*

ECGR 3695. Electrical Engineering Cooperative Education Seminar. (1) Required of Co-op students during semesters immediately following each work assignment for presentation of engineering reports on work done the prior semester. This program is coordinated by the University Career Center. *(Fall, Spring, Summer)*

ECGR 3890. Individualized Study. (1-3) Prerequisite: consent of the Department. Supervised individual study within an area of a student's particular interest which is beyond the scope of existing courses. May be repeated for credit. *(On demand)*

ECGR 3990. Undergraduate Research. (1-4) Prerequisite: consent of the Department. This course involves the independent study of theoretical and/or experimental problems in the specialized area of engineering analysis and design. The student can pursue some particular area or problem to a depth much greater than can be undertaken

within the scope of existing courses. May be repeated for credit. *(On demand)*

ECGR 4101. Advanced Computer Utilization. (3) Same as ECGR 5101. Prerequisite: consent of Department. The use of computers in large scale engineering problems. Topics include flow diagrams, matrix analysis of systems, applications of iteration methods to non-linear problems, eigen-value problems, optimization and handling of large engineering database problems. Engineering applications will be emphasized. *(On demand)*

ECGR 4102. Engineering Simulation. (3) Same as ECGR 5102. Prerequisite: ECGR 2103 or consent of Department. A wide range of simulation related topics will be introduced including the theory of simulation, characteristics of simulators, and trade-offs in simulation studies. Continuous and discrete simulation with primary emphasis on application of simulation techniques to engineering problems. Simulation of actual problems based on students' interest and experience areas. *(On demand)*

ECGR 4103. Applied Computer Graphics. (3) Same as ECGR 5103. Prerequisite: permission of Department. Interactive graphics; raster, character, vector, graphics, display technologies; rotation, scaling, translating of graphics image; image processing/enhancement; feature extraction; 3-D graphics; hidden lines. *(On demand)*

ECGR 4104. Computational Methods in Power Systems. (3) Same as ECGR 5104. Prerequisite: ECGR 4142 or consent of Department. Numerical techniques for analysis, operation, and planning of power systems. Sparse matrix techniques applied to power flow algorithms. Economic operation of power systems. Optimum power flow. *(On demand)*

ECGR 4111. Control Systems Theory I. (3) Prerequisite: ECGR 3111 with a grade of *C* or better. Transfer functions, block diagrams, and signal flow graphs. Feedback control system characteristics. The performance and stability of feedback systems using root locus and frequency response methods. Time domain analysis of control systems. The design and compensation of control systems. *(Fall)*

ECGR 4112. Control Systems Theory II. (3) Prerequisite: ECGR 4111 with a grade of *C* or better. State space techniques and useful state space methods. System stability. Controllability and observability of linear systems. The formulation of the state equations for discrete-time systems and the analysis of these systems by matrices. Analysis of nonlinear systems. Optimal control systems studies. *(Spring)*

ECGR 4113. Modeling and Analysis of Dynamic Systems. (3) Prerequisite: ECGR 3111 or permission of the Department. Models and dynamical properties of mechanical, thermal, and fluid systems, utilizing by analogy the properties of electrical circuit theory. Emphasis on the formulation of circuit models and the development of terminal equations of system components. Dynamic response to step, pulse, and sinusoidal driving functions using Laplace transforms. Sinusoidal steady-state and frequency response of systems. *(On demand)*

ECGR 4121. Antennas. (3) Prerequisite: ECGR 3122 with a grade of *C* or better or permission of the Department. Radiation into free space, the point source, thin linear antenna, arrays of linear elements, aperture antennas, impedance, methods of feeding, matching and termination. Antenna systems. *(On demand)*

ECGR 4122. Acoustics. (3) Prerequisite: ECGR 3122. Vibrations and simple vibrating systems; radiating systems; plane waves of sound; dynamic analogies, microphones and other acoustic transducers; acoustic measurements. *(On demand)*

ECGR 4123. Analog and Digital Communication. (3) Prerequisite: ECGR 3111. Analysis and transmission of signals, including analog communication systems (amplitude and frequency modulation, effect of noise); digital communications systems (pulse code modulation, data transmission systems phase-shift keying, and frequency-shift keying, effect of noise), *(Fall) (Evenings)*

ECGR 4124. Digital Signal Processing. (3) Prerequisite: ECGR 3111 with a grade of *C* or better. Sampling and signal recovery in linear systems; analysis of sampled systems; discrete and fast Fourier transforms; z-transform; discrete convolution; design of digital FIR and IIR filters. *(Spring)*

ECGR 4125. Foundation of Optical Engineering. Same as ECGR 5125. Prerequisites: ECGR 3122 and PHYS 2241 or permission of Department. The engineering aspects and applications of modern optics, optical communications, optical materials, optical devices, basic optical fiber and integrated optics, optical signals, and optical networks, basic Fourier optics, and methods in optical signal processing. Signal and data processing, principles of integrated optics. *(Fall)*

ECGR 4131. Linear Integrated Electronics. (3) Prerequisite: ECGR 3132 with a grade of *C* or better. Design of linear integrated circuits utilizing bipolar and MOS devices. Application in linear amplifier design, control, and processing of analog signals. *(Fall)*

ECGR 4132. Analog Integrated Circuits Design. (3) Same as ECGR 5132. Prerequisite: consent of Department. Topics include analog MOS modeling, design of current mirrors, references, and operational amplifiers. Both hand analysis and SPICE simulation utilized. (Spring)

ECGR 4134. Solid State and Semiconductor Microelectronics II. (3) Prerequisites: ECGR 3133 or permission of Department. PN-junctions and Schottky junctions; bipolar and field effect transistors; optoelectronic and heterojunction devices; lithography and integrated circuits; microwave devices; light emitting devices and detectors; quantum devices using superlattices; quantum wells and quantum dots; material preparation and characterization; and measurement techniques. (*Spring*)

ECGR 4135. Physical Electronics. (3) Same as ECGR 5135. Prerequisite: ECGR 3122 or PHYS 3181 or permission of Department. Dynamics of charged particles; electron motion in electromagnetic fields; types of electron emission; beam focusing; longitudinal and transverse beam

waves; microwave generation; plasma parameters. *(On demand)*

ECGR 4137. Device Electronics for Integrated Circuits. (3) Same as ECGR 5137. Prerequisites: ECGR 3132 permission of Department. The basic operating principles of electronic devices in integrated circuits are treated. The physical models of these devices are discussed. Graduate students are required to carry out laboratory experimentation. *(Fall) (Evenings)*

ECGR 4138. Electronic Thin Film Materials and Devices. (3) Same as ECGR 5138. Prerequisite: ECGR 4133 or 3132, or permission of the Department. Applications of thin films in microelectronics/optoelectronics manufacturing processes; vacuum technology, deposition techniques, and the characterization methods relevant to optoelectronic applications; thin film applications such as metallization, silicide formation, light emitting diodes (LED) and lasers, and doping of semiconductors. *(Fall)*

ECGR 4139. Digital Communication Systems. (3) Same as ECGR 5139. Prerequisites: ECGR 2181 and 3131. Topics include digital data transmission systems, signal and system representation, digital system performance characterization, pulse code modulation, and statistical communications theory. *(On demand)*

ECGR 4140. Introduction to VLSI Processing. (3) Same as ECGR 5140. Prerequisite: permission of the Department. Microelectronic fabrication; relevant materials, processes, and tools; fabrication of a simple structure in the VLSI clean room/lab. *(Fall)*

ECGR 4141. Power System Analysis I. (3) Prerequisite: ECGR 3142 with a grade of *C* or better. Representation of power system components for analysis studies. Transmission line parameters. Network equations. Load flow analysis and numerical methods. *(Fall)*

ECGR 4142. Power System Analysis II. (3) Prerequisite: ECGR 4141 with a grade of *C* or better. Economic operation of power systems. Short circuit studies. Symmetrical components. Transient stability analysis. *(Spring)*

ECGR 4143. Electrical Machinery. (3) Prerequisite: ECGR 3142 with a grade of *C* or better. Advanced theory of transformers and rotating. Machines; harmonic and saturation effects on machine performance. Unbalanced operation and transient conditions. *(On demand)*

ECGR 4146. Introduction to VHDL. (3) Same as ECGR 5146. Prerequisites: ECGR 2181 and knowledge of a computer language, or permission of Department. Introduction to VHSIC Hardware Description Language (VHDL) including VHDL-based high-level design of microelectronic systems, VHDL programming, and VHDL synthesis; emphasis on learning and using industry-standard VHDL tools. *(Fall)*

ECGR 4161. Introduction To Robotics. (3) Prerequisites: ECGR 2103 or MEGR 2101 and senior standing. Modeling of industrial robots including homogeneous transformations, kinematics, velocities, static forces, dynamics, computer animation of dynamic models, motion trajectory planning, and introduction to vision, sensors, and actuators (dual-listed with MEGR 4127). *(Fall)*

ECGR 4162. Control of Robotic Manipulators. (3) Same as ECGR 5161. Prerequisites: ECGR 4161 and 4111. Control of industrial robots including linear, nonlinear, and adaptive control of robot's motion plus control of forces and torques exerted by the end-effector. Additional topics include computer animation of the controlled behavior of industrial robots, actuator and sensor types, robot vision, and control computer/robot interfacing (dual-listed with MEGR 5128). *(Spring)*

ECGR 4165. Laser Electronics. (3) Same as ECGR 5165. Prerequisites: ECGR 3132 and PHYS 2241 or permission of Department. Laser oscillation, excitation, amplification, dispersion, and absorption, Basic principles of quantum electronics, general characteristics of lasers, semiconductor lasers, solid state lasers, gas lasers, laser switching and modulation, CW and pulsed lasers which includes, Q-switching, mode locking, and other techniques for short pulse generation. Basic spectroscopy, nonlinear effects, laser processing, and laser. *(Spring)*

ECGR 4181. Computer Arithmetic. (3) Same as ECGR 5181. Prerequisite: permission of Department. Principles, architecture, and design of fast two operand adders, multi-operand adders, standard multipliers and dividers. Cellular array multipliers and dividers. Floating point processes, BCD and excess three adders, multipliers and dividers. *(On demand)*

ECGR 4182. Digital System Testing. (3) Prerequisite: ECGR 2181 with a grade of *C* or better or permission of Department. System testing; Boolean difference; D-algorithm; checking experiments; redundancy, computer-aided digital test systems. *(Spring)*

ECGR 4183. Network Synthesis. (3) Same as ECGR 5113. Prerequisite: ECGR 4114. The positive real concept, properties and methods of testing. Realizability conditions on driving point functions. Methods of synthesis of one-port. Physical realizability and properties of two-port networks. Transfer function synthesis. Approximation methods. *(On demand)*

ECGR 4184. Device Characterization, Parameterization and Modeling. (3) Same as ECGR 5114. Prerequisite: ECGR 3132 permission of Department. Advance device and circuit analysis; device and circuit simulation using SPICE, ECAP or equivalent. Parametric modeling of active devices. Device characterization and parameterization; temperature effects; thermal cycling. Analysis of device failure modes. *(On demand)*

ECGR 4185. Advanced Electromagnetic Field Theory. (3) Same as ECGR 5123. Prerequisite: ECGR 3122 or permission of Department. Maxwell's equations and propagation. Properties of guided and surface waves. Wave properties of light; physical and fiber optics. *(On demand)*

ECGR 4186. Foundation of Optical Engineering. (3G) Same as ECGR 5125. Prerequisites: ECGR 3122 and PHYS 2241 or permission of Department. The engineering aspects and applications of modern optics, optical communications,

optical materials, optical devices, basic optical fiber and integrated optics, optical signals, and optical networks, basic Fourier optics, and methods in optical signal processing; signal and data processing, principles of integrated optics. *(Fall)*

ECGR 4187. Data Communications. (3) Same as ECGR 5187. Prerequisite: consent of Department. Principles of data communication; computer communications architecture (layering) with emphasis on the physical layer and data link layer, transmission media; analog and digital signal representation; data transmission basics; Shannon's theorem; error detection/correction; data compression; point-to-point protocols; multiplexing. *(Fall)*

ECGR 4188. Advanced VLSI Systems Design. (3) Same as ECGR 5134. Prerequisite: ECGR 5133. A project-oriented course dealing with advanced topics in VLSI systems design and analysis such as circuit design techniques, array structures, performance estimation, automated routing, and device electronics. *(Spring)*

ECGR 4190. Power Generation: Operation and Control. (3) Same as ECGR 5142. Prerequisite: ECGR 4142 or consent of Department. Characteristics of power generation units, steam, nuclear reactor and hydroelectric. Economic and thermal system dispatch. Transmission losses, load flow problems. Hydro scheduling, hydro-plant models. Energy production cost models. Interchange evaluation. *(Fall) (Alternate years) (Evenings)*

ECGR 4191. Dynamic and Transient Analysis of Power Systems. (3) Same as ECGR 5143. Prerequisite: ECGR 4142 or permission of Department. Large-scale systems state descriptions and hierarchical control. State space models, dynamic stability and testing. Stability of simple and multi-machine systems. Transient phenomena in electrical power systems. Transient stability problem. *(Spring) (Alternate years) (Evenings)*

ECGR 4193. Foundation of Optical Engineering. (3) Same as ECGR 5125. Prerequisites: ECGR 3122 and PHYS 2241 or permission of Department. The engineering aspects and applications of modern optics, optical communications, optical materials, optical devices, basic optical fiber and integrated optics, optical signals, and optical networks, basic Fourier optics, and methods in optical signal processing. signal and data processing, principles of integrated optics. *(Fall)*

ECGR 4231. Sensors & Actuators. (3) Same as ECGR 5231. Prerequisite: ECGR 3132, 3121, or permission of Department. Fundamentals of sensors and actuators, and their applications in smart machines, industry, metrology, and the environment. Materials for sensors, actuators, electronic and optical sensors, electroptics, magneto-optics, and fiber optics sensors, microsensors and actuators, sensors and actuators, signal processing and interfaces. *(On Demand)*

ECGR 4261. Microwave Circuit Design I. (3) Same as ECGR 5261. Prerequisites: ECGR 3131; and senior/graduate standing, or permission of Department. Design and analysis of microwave devices and circuits; including microwave aspects of discrete active (i.e., field effect and bipolar transistors, etc.) and passive (i.e., microstrips, inductors, capacitors) components; device parameter extraction, using computer aided design (CAD) tools. *(Fall)*

ECGR 4265. Microwave Devices and Electronics. (3) Same as ECGR 5265. Prerequisites: ECGR 3122 and PHYS 2231 with grades of *C* or better or permission of Department. Microwave transmission line theory, parameters, microwave waveguides, microstrip line and components including resonators, slow-wave structures; tees, rings, couplers, circulators, isolators, and microwave tubes. Microwave solid state electronics, including microwave transistors, tunnel diodes, transferred electron devices, avalanche transit-time devices, and mono-lattice microwave integrated circuits. *(On demand)*

ECGR 4422. Random Processes and Optimum Filtering. (3) Same as ECGR 5122. Prerequisites: ECGR 3111 and STAT 3228 or permission of Department. Review of probability, univariate and multivariate distribution functions; random processes, discrete and continuous time precesses, widesense stationary, ergodicity; time-and frequency-domain analysis; linear systems, optimum filtering, Wiener filters, Kalman filters; application. (Spring)

ECGR 4433. VLSI Systems Design. (3) Same as ECGR 5133. Prerequisite: ECGR 2181 and 3131 or permission of Department. Analysis, design, and synthesis of very large scale integrated circuits. A project-oriented course relying heavily on computer-aided design tools for logic, layout design, and simulation. *(Fall) (Evenings)*

ECGR 4892. Individualized Study. (1-6) Same as ECGR 5892. Individual investigation and exposition of results. May be repeated for credit. *(On demand)*

ECONOMICS (ECON)

ECON 1090. Topics in Economics. (1-3) Consideration of topics from the areas of economic theory, economic development, consumer economics, welfare economics, and current economic problems. May be repeated for credit as topics vary. (*On demand*)

ECON 1101. Economics for Non-Majors. (3) Economic issues without emphasis on theoretical models. Contemporary economic issues such as pollution control, health care, unemployment, and crime are studied. A student is ineligible to take this course if credit has already been received for either ECON 1201 or ECON 1202. (*Fall, Spring, Summer*)

ECON 1201. Principles of Economics-Macro. (3) (C) Scope and methodology of economics as a social science, the measurement of national income, the theory of national income determination, money and banking, monetary and fiscal policy, and international economics. (Formerly ECON 2101) *(Fall, Spring, Summer) (Evenings)*

ECON 1202. Principles of Economics-Micro. (3) (C) Pricing mechanism of a market economy, the industrial organization of the U.S. economy, problems of economic concentration, the theory of income distribution, and

comparative economic systems. (Formerly ECON 2102) *(Fall, Spring, Summer) (Evenings)*

ECON 3090. Topics in Economics. (3) Prerequisite: consent of the Department. Topics from the areas of economic theory, economic development, consumer economics, welfare economics, and current economic problems. May be repeated for credit. *(On demand)*

ECON 3105. Industrial Relations. (3) Prerequisite: introductory course in economics or consent of instructor. Systematic analysis of the sociological, economic, and legal forces affecting the work environment. Emphasis on labor unions and employment law. *(On demand)*

ECON 3106. Labor Economics. (3) Prerequisites: ECON 1201 and 1202. Economics of labor markets with emphasis on wage and employment theory, collective bargaining, and human capital theory. Historical and legal forces affecting labor markets. *(On demand)*

ECON 3107. Employment Law. (3) Legal principles and legislation which control employment decisions in union and non-union settings. Topics include fair employment practices, anti-discrimination law, representation elections, unfair labor practices, and dispute settlement processes. (Same as MGMT 3243.) *(On demand)*

ECON 3112. Econometrics. (3) Prerequisites: ECON 1201 and 1202, MATH 1120 or 1241, STAT 1220 and INFO 2130. Econometric techniques, including simple and multiple least squares regression with problems and analyses. *(Fall, Summer)*

ECON 3114. Research Methods. (3) Prerequisites: STAT 1220, INFO 2130, and ECON 3112 or 3117. Introduction to research in economics, including major sources of data and information and application of elementary research methods to economic problems. *(On demand)*

ECON 3115. Money and Banking. (3) Prerequisite: ECON 1201. The characteristics and functions of money in the modern economy, monetary theory and policy, and financial institutions. *(On demand)*

ECON 3122. Intermediate Microeconomics. (3) Prerequisites: ECON 1201 and 1202 and MATH 1120 or 1241. Microeconomic analysis with emphasis on consumer theory and the theory of production. Resource allocation and the determination of optimum output and pricing by a firm operating under various market structures. Distribution and welfare theories. *(Fall)*

ECON 3123. Intermediate Macroeconomics. (3) Prerequisites: ECON 1201 and 1202 and MATH 1120 or 1241. Analysis of economic aggregates with inflation, unemployment, and income determination. Keynesian, Classical, Monetarist, and supply side models. *(Spring)*

ECON 3125. Economics of the Firm. (3) Prerequisites: ECON 1202, MATH 1120 or 1241, STAT 1220, and INFO 2130. Economic decisions of particular interest to business firms, e.g., demand theory and forecasting; cost analysis and pricing policies. *(Fall, Spring, Summer) (Evenings)*

ECON 3131. Economic History of the United States. (3) Prerequisite: ECON 1101 or 1201 or 1202. Use of economic models to further understanding of the growth and development of the U.S. economy from colonial times to the Great Depression. Emphasis on the sources and consequences of American growth, with particular emphasis on technological, demographic, and institutional changes. *(On demand)*

ECON 3141. Health Economics. (3) Prerequisite ECON 1202. The application of microeconomic concepts to markets for health/medical care, including issues such as health care delivery, financing, regulation, and costs. *(On demand)*

ECON 3171. International Economics for Non-Majors. (3) Prerequisite: ECON 1201 and 1202. Survey of international trade and international monetary theory including determination of international trade patterns, welfare implications of international trade and trade restrictions, economic integration, exchange rate determination, and the balance of payments. (Not an economics elective for Economics majors or minors.) Credit will not be given for ECON 3171 where credit has already been given for ECON 4171 or 4172. *(On demand)*

ECON 3200. Foundations in Economics. (3) Overview of microeconomic and macroeconomic concepts. Microeconomics: scarcity, opportunity costs, marginal analysis, demand, supply and market structures. Macroeconomics: present values, national income accounting, interest rates, real values versus nominal values, monetary and fiscal policy, balance of payments, and economic growth. (Economics preparation to enter MBA program. Cannot be taken for credit toward any undergraduate degree within the Belk College of Business Administration or used as equivalent credit for ECON 1201 - 1202. Credit will not be given for ECON 3200 where credit has been given for ECON 1201 or ECON 1202.) *(Fall, Spring)*

ECON 3400. Economic Internship. (1-3) Prerequisites: Open to junior and senior Economics majors in good standing. Requires 50 hours of supervised employment per hour of credit and the completion of an academic project. Students must consult the Department Chair in advance of registration to discuss the availability of positions. A proposal form must be completed and approved prior to registration and the commencement of the work experience. Offered on a *Pass/No Credit basis*. Cannot be taken for credit at the same time or following any other internship for credit and cannot be repeated. *(Fall, Spring, Summer)*

ECON 3500. Cooperative Education Experience. (0) Enrollment in this course is required for the Department's Cooperative Education students during each semester they are working in a Co-op position. Restricted to majors in the Department of Economics. Course evaluation is Satisfactory/Unsatisfactory. *(Fall, Spring, Summer)*

ECON 3895. Directed Individual Study. (1-3) Prerequisites: permission of the instructor and the Department. Independent study of a theoretical and/or a policy problem in a special area of economics. Students may pursue a particular program in depth. Topics of the

investigation may originate from the student or from the faculty member supervising the study. May be repeated for credit. *(Fall, Spring, Summer) (Evenings)*

ECON 4100. Mathematical Economics. (3) Prerequisites: ECON 1201 and 1202 and MATH 1120 or 1241. Both microeconomic and macroeconomic problems are analyzed with quantitative techniques. Emphasis is given to the study of methods for mathematically formulating economic relationships including the tools used for finding maximums, minimums, and limits to single, recursive, and simultaneous economic relationships. Not available for credit in the M.S. program in Economics. *(Alternate years)*

ECON 4112. Econometrics II. (3) Prerequisite: ECON 3112 or consent of instructor. Tools of analysis are more extensive and of a greater depth than those studied in ECON 3112. Regression and correlation techniques are applied to economic and business problems derived from government and business environments. Not available for credit in the M.S. program in Economics. (Cross-listed with ECON 6112.)*(Alternate years)*

ECON 4116. Public Sector Economics. (3) Prerequisite: ECON 3122. Revenue and expenditure problems of governmental units, intergovernmental financial relationships and the impact of federal fiscal policy upon the American economy. *(On demand)*

ECON 4117. Business and Economic Forecasting. (3) Prerequisite: ECON 3112. Analysis of fluctuations in economic activity, including production, employment, prices and industry sales. Topics include forecasting methods, business cycle theories, historical record, industry and sales forecasting. Not available for credit in the M.S. program in Economics. *(On demand)*

ECON 4135. Economics of Growth and Development. (3) Prerequisite: ECON 1202. Theories of economic growth and development applied to varying economic and social systems. Emphasis on current theoretical models of technological innovation and growth. *(On demand)*

ECON 4150. Urban and Regional Economics. (3) Prerequisite: ECON 1202. Spatial and economic organization of cities and regional areas and their special economic problems. Topics include economic growth, urban location and land use, poverty, housing, public finance, and urban transportation. (Cross-listed with ECON 6250.)*(On demand)*

ECON 4160. Economics of Transportation. (3) Prerequisite: ECON 1202. Analysis of transportation systems. Topics include the historical development of various modes, costs and rate-making, regulation and national transportation policy. *(On demand)*

ECON 4171. Economics of International Trade. (3) Prerequisite: ECON 3122. Theory of international trade, including determination of international trade patterns, welfare implications of international trade, economic integration, and effects of tariffs and quotas. *(On demand)*

ECON 4172. Economics of International Finance. (3) Prerequisite: ECON 3123. Survey of international monetary theory. Topics include exchange rate determination, balance of payments and adjustment, international liquidity, capital movements, international financial organizations, and monetary reform proposals. *(On demand)*

ECON 4177. History of Economic Thought. (3) (W) Prerequisites: ECON 1201 and 1202. History of economics as a science and the evolution of theories of value, distribution and employment. Review of the works of Adam Smith, Thomas Malthus, David Ricardo, Karl Marx, Alfred Marshall, Thorstein Veblen, and John Maynard Keynes. *(Spring)*

ECON 4180. Industrial Organization and Public Policy. (3) Prerequisite: ECON 3122. An examination of monopolistic competition, oligopoly, and monopoly and questions of public policy in dealing with problems created by industrial concentration. *(Spring, Summer)*

ECON 4181. Energy and Environmental Economics. (3) Prerequisite: ECON 1202. Economic issues of both energy and environment. Energy issues include the historical development of energy resources, supply and demand considerations and projections of the future energy balance. Environmental issues are externalities, common property resources, and government regulation. Policy considerations include environmental standards, pollution charges, and property rights. Cost-benefit analysis and microeconomic theory are applied. *(On demand)*

EDUCATION (EDUC)

EDUC 2100. Introduction to Education and Diversity in Schools. (3) (C) Corequisite: SPED 2100. Social, historical, and philosophical foundations of the educating professions, the organization and various levels of education, and the major issues in American education. Field-based activities in observing in class and non-classroom settings: 5 hours. *(Fall, Spring, Summer)*

EDUC 2150. Human Development Across the Life Span. (3) (C) Biological, psychological and social development throughout the life span. *(Once a year)*

EDUC 3600. Teaching Fellows Seminar. (1) Prerequisite: Membership in good standing in the North Carolina Teaching Fellows Program. A discussion-oriented course in contemporary school issues led by the program's faculty sponsors to cover Teaching Fellows Program expectations and prepare students to participate in required school, community, campus, and other enrichment activities. May be repeated for credit. *(Fall, Spring)*

EDUCATION INSTRUCTIONAL SYSTEMS TECHNOLOGY (EIST)

EIST 4100. Computer Applications in Education. (3) Computer systems and software for enhancing teaching, learning, and educational management; evaluating, selecting, and integrating courseware; focus on current PC operating system, word processing, database, spreadsheet, presentation, Internet, e-mail, and multimedia software. *(Fall, Spring, Summer)*

EIST 4135. Audiovisual Communications. (3) Prerequisite: Junior standing or departmental approval. Overview of traditional and emerging audiovisual media for education, training, marketing, and public relations, emphasizing knowledge and skills for evaluating, designing, producing, and using media such as photography, television, displays, interactive video, and microcomputers to enhance communication. *(On demand)*

EIST 4140. Educational Television. (3) Prerequisite: Junior standing or departmental approval. An examination of traditional and emerging applications of telecommunications media for teaching, training and informing. Investigation of published research and current strategies for evaluating the social and educational impact of television. Students will evaluate, design, produce, and utilize telecommunications media in micro-teaching settings, for the enhancement of communication in their respective disciplines. *(On demand)*

ELEMENTARY EDUCATION (ELED)

ELED 3120. The Elementary School Child. (3) Prerequisite: Admission to Teacher Education. Child development theories and research findings, conceptual relationships between education and developmental paradigms, pathways of individual student development, child-centered and other types of educational reforms, the concept of developmental "needs" and the roles and responsibilities of school staff for meeting children's developmental needs. Includes approximately 10 hours of field activities. *(Fall, Spring, Summer)*

ELED 3121. Measuring and Evaluating Learning in the Elementary School Curriculum. (3) Prerequisite: Admission to Teacher Education. Planning for K-6 classroom measurement and evaluation based on objectives with emphasis on writing cognitive, affective, and psychomotor outcomes using an accepted system, and the development of teacher-made tests and other types of classroom assessment, including objectives, essay, oral, performance, and portfolio evaluation. Includes 5 hours of field experiences. *(Fall, Spring, Summer)*

ELED 3122. Research and Analysis of Teaching Elementary School Learners. (3) Prerequisite: Admission to Teacher Education. Concepts, methods, and practices used by effective teachers in their daily K-6 classroom routines with emphasis on classroom management and organization. Approximately 10 hours of field experience. *(Fall, Spring, Summer)*

ELED 3220. Integrating Curriculum for Elementary School Learners. (4) Prerequisite: Admission to Teacher Education. Curriculum planning and development skills with emphasis on relating school content and skills to societal and individual needs, designing and implementing integrated activities, and attending to the nature and functions of elementary schools. Includes 12 hours of field experiences. *(Fall, Spring, Summer)*

ELED 3221. Teaching Science to Elementary School Learners. (3) Prerequisite: Admission to Teacher Education. Teaching strategies and materials appropriate for teaching inquiry science in grades K-6 with emphasis on using science process skills and content to develop effective science learning experiences for elementary school children. Includes 10 hours of field experiences. *(Fall, Spring, Summer)*

ELED 3223. Teaching Social Studies to Elementary School Learners. (3) Prerequisite: Admission to Teacher Education. Teaching strategies and materials for social studies in grades K-6 with emphasis on using social science content to develop effective social studies instructional plans for elementary school children. Includes 12 hours of field experiences in a classroom setting. *(Fall, Spring, Summer)*

ELED 3226. Teaching Language Arts to Elementary School Learners. (3) Prerequisite: Admission to Teacher Education. Teaching of language arts in grades K-6, including how the study of language acquisition and growth informs and guides instructional practice. Emphasis on methods for fostering growth in speaking, listening, writing, and reading across the curriculum. Includes 12 hours of field experiences. *(Fall, Spring, Summer)*

ELED 3420. Student Teaching/Seminar: K-6 Elementary Education. (15) (O) Prerequisites: Completion of all other course work and approved Application for Student Teaching. Planned sequence of experiences in the student's area of specialization conducted in an approved school setting under supervision and coordination of a University supervisor and a cooperating teacher. Students must demonstrate the competencies identified for their specific teaching field in an appropriate grade-level setting. Approximately 35 to 40 hours per week in an assigned school setting and 10-12 on-campus seminars scheduled throughout the semester. *(Fall, Spring)*

ELED 3800. Individual Study in Elementary Education. (1-6) Prerequisite: Permission of the student's advisor. Independent study under the supervision of an appropriate faculty member. May be repeated for credit. *(Fall, Spring, Summer)*

ELED 4255. CAMMP: Computer Applications and Manipulative Mathematics Programs. (3) Examination of constructivism in K-8 mathematics teaching, with emphasis on concrete, representational and symbolic manipulatives; developmentally appropriate computer software. *(Summer)*

ENGLISH (ENGL)

ENGL 1100. English As A Foreign Language. (3) Limited to students whose native language is not English who may need additional preparation before beginning the required first-year English composition courses. Does not count toward an English major nor toward the General Education requirement. One may not register for ENGL 1100 before taking the English Department's placement test for persons whose primary language is not English. (*Fall, Spring*)

ENGL 1101. English Composition. (3) Extensive practice in and discussion of composition in various forms, for different purposes, and for various audiences. Students experience writing as a means of personal growth, intellectual development, and communication. (*Fall, Spring, Summer) (Evenings*)

ENGL 1102. Writing in the Academic Community. (3) Prerequisite: ENGL 1101. Writing argumentation appropriate to inquiry in an intellectual community. *(Fall, Spring, Summer) (Evenings)*

ENGL 1103. Accelerated College Writing and Rhetorie. (3) Prerequisite: Placement by the English Department. Accelerated writing curriculum which fulfills the requirement for ENGL 1101 and 1102. *(Fall)*

ENGL 1101 and 1102 (or 1103) are prerequisites for all English courses at the 2000 level or above.

ENGL 2014. Topics in Writing. (1-3) (W) Offers instruction and practice in special types of writing, such as research or legal writing, which are not included in other writing courses. In addition, some sections may be designed for students who need strengthening of composition skills, or may offer instruction in various aspects of effective writing. English 2014 *may not be used* toward the requirements for the English major. The *maximum hours of credit* allowed are six for English 2014 or 2015, or for 2014 and 2015 together. (*On demand*)

ENGL 2015. Topics in Writing. (1-3) (W) Offers instruction and practice in special types of writing, such as writing for publication (exclusive of poetry, drama, and fiction), which are not included in other writing courses. In addition, some sections may offer instruction in various aspects of effective writing. *Not more than* three hours of 2015 may be used toward the requirements for the English major (and those three hours may not be used toward fulfillment of the 12 hours of english language or composition required for licensure in English). The *maximum hours of credit* allowed for any student are six for English 2015 or 2014, or for 2015 and 2014 together. (*On demand*)

ENGL 2050. Topics in English. (3) Designed to offer topics of general interest not included in other courses. May be repeated for additional credit with the approval of the English Department. Does not count toward the English major. (*Yearly*)

ENGL 2090. Topics in English. (3) (L or A) Designed to offer topics of general interest not included in other courses. May be repeated for additional credit with the approval of the English Department. May count toward the English major. (*On demand*)

ENGL 2100. Writing About Literature. (3) Combined practice in writing and study of literature, emphasizing writing processes including revision. Must be completed before ENGL 3100 and other English coursework. Restricted to English majors and minors and Education majors.

ENGL 2101. Masterpieces of British Literature I. (3) (L or C) An introduction to British Literature written before 1800. The course also provides backgrounds in the society and culture of the Middle Ages, the Renaissance, and the Age of Reason. *(Yearly)*

ENGL 2102. Masterpieces of British Literature II. (3) (L or C) An introduction to masterpieces of British Literature written since 1800. The course also provides backgrounds in the society and culture of the Romantic, Victorian, and Modern periods. *(Yearly)*

ENGL 2103. Masterpieces of Modern Fiction. (3) (L) Readings in selected novels and short stories written since 1850. *(Yearly)*

ENGL 2104. Major American Writers. (L) (3) Introductory readings in six to eight authors, approximately half from the 19th century and half from the 20th century, both poetry and prose. (*Yearly*)

ENGL 2105. Introduction to Poetry. (3) (WL) Representative poems and poets, drawn from several literary periods that introduce students to several poetic genres, to varied treatments of universal themes (such as love, death, disappointment, joy) and to various ideas about poetic imaginations. *(Fall, Spring, Summer)*

ENGL 2106. Film Criticism. (4) (A) Introduction to film as an art form. Emphasis will be on critical theory and on critical analysis of the form and the content of different kinds of films--e.g., the narrative film, the silent film, the documentary film, etc.--drawn from the international cinema. Students will apply critical theory to the analysis of professionally made films and will have the option of making their own short films. A viewing lab is required. *(On demand)*

ENGL 2108. Introduction to Drama. (3) (W) Representative plays of the western world from the classical period to the modern period to introduce students to drama as literature, with consideration of staging, conventions of the theatre, types of drama, and dramatic theory. *(On demand)*

ENGL 2111. Introduction to Ancient World Literature I. (3) (L or X) Reading of ancient world literature, in English translation. (*Yearly*)

ENGL 2112. Introduction to Modern World Literature. (3) (L or X) Readings in modern world literature, in English and, in English translation. *(Yearly)*

ENGL 2116. Introduction to Technical Communication. (3) (W) Technical Communication theory (such as organization, audience analysis, and editing) is taught in the context of oral and written formats, such as memoranda, proposals, and reports, and includes formats and content common to students' own disciplines. (*Fall, Spring, Summer) (Evenings)*

ENGL 2126. Introduction to Creative Writing. (3) (W) This course introduces students to creative writing, including both poetry and fiction writing, assuming little or no previous creative writing experience. (*Fall, Spring, Summer*)

ENGL 2127. Introduction to Poetry Writing. (3) An introductory course for those with little experience in reading, writing, and critiquing poetry. Students will read and discuss poetry in an anthology and also be responsible for writing poems based on assigned formal strategies or themes and bringing them to a workshop setting for group critique. *(On demand)*

ENGL 2128. Introduction to Fiction Writing. (3) An introductory course for those with little experience in reading, writing, and critiquing fiction. Students will read and discuss short stories in an anthology and also be responsible for writing stories based on assigned formal strategies or themes and bringing them to a workshop setting for group critique. *(On demand)*

ENGL 2301. Introduction to African-American Literature. (3) (L) Prerequisite: ENGL 1101 and 1102 or 1103, or departmental permission. Survey of the major periods, texts, and issues in African-American Literature. Prerequisite to 4000 level African-American literature courses in English Department. Cross-listed as AAAS 2301. *(Fall, Spring)*

ENGL 3050. Topics in English. (3) Special topics not included in other courses. May be repeated for credit as topics vary. *(Yearly)*

ENGL 3100. Approaches to Literature. (3) (W) Introductory study and application of major critical approaches to literature, such as historical, psychological, mythological, and formalistic. Required of English major. *(Fall, Spring, Summer) (Evenings)*

ENGL 3102. Literature for Young Children. (3) Literature for children between the ages of two and seven. Picture books, nursery rhymes, and storytelling techniques. *(Spring)*

ENGL 3103. Children's Literature. (3) (L) Critical and historical study of children's literature, including picture books, poetry, myth, fable, folk tale, fantasy, and realistic fiction. Central to the course is development of critical principles for assessing the literary merit of children's books. Other possible emphases: the creative process; archetypes and values in the works studied; images of childhood; children's responses to literature; and issues in children's book selection. [English 3103 and/or 3104 required for English majors seeking intermediate teacher license.] *(Fall, Spring)*

ENGL 3104. Literature for Adolescents. (3) (L) Introduction to literature for adolescents. Emphases are: (1) critical analysis and aesthetic judgment of literature; (2) study of representative examples from all major genres (poetry, fiction, and drama) as well as various subgenres (such as biography, science fiction, fantasy, and contemporary realistic juvenile fiction) which address the cognitive, emotional, and psychological needs of junior high and high school students. Students will practice applying these approaches to adolescent literature and will employ these concepts in critically selecting, evaluating, and judging books for adolescents. [English 3103 and/or 3104 required for English majors seeking intermediate teacher license.] *(Yearly)*

ENGL 3110. Literature and Science. (3) (WV) The works of scientists (such as Darwin, Freud, or Einstein) and their influence on literature studied along with the role of creativity, imagination, and communication in literature and science. *(On demand)*

ENGL 3112. Medieval British Literature. (3) Representative works (excluding those of Chaucer) written in Britain during the Middle Ages, especially the epic and romance, mainly studied as reflections of the medieval individual's relationship to God, society, and other individuals. An introduction to the earliest British literature as it evolved from pagan folklore under the influence of myth, fantasy, courtly convention, the new religion, foreign invasion, and transformations in language and culture. Most of the works studied in this course will be translated into modern English. *(On demand)*

ENGL 3114. British Prose and Poetry of the 16th Century. (3) Major works of the Renaissance "Golden Age," including Sidney, Marlowe, Shakespeare (excluding drama). Included are satire, the pastoral romance in prose, and the many new poetic forms that continue to the present day, such as the sonnet and blank verse. *(On demand)*

ENGL 3115. The Earlier 17th Century. (3) Major writers from Bacon and Donne to the Restoration. *(On demand)*

ENGL 3123. Wit and Sensibility: 18th-Century British Literature. (3) Poetry and prose in the golden age of satire, with emphasis on Dryden, Pope, Swift, and Johnson. Early Romantic trends in the poetry of Young, Grey, and Collins. *(Alternate years)*

ENGL 3125. The Romantic Era, 1785-1832. (3) The development of the Romantic movement, with emphasis on the works of Wordsworth, Coleridge, and other major poets. *(Yearly)*

ENGL 3126. The Victorian Era to 1870. (3) Readings in British literature of the middle of the 19th century, reflecting such cultural developments as the rise of industrialism and technology, England's global empire, the rapidly changing nature of society, the religious crisis, and the beginnings of artistic and literary revolt against the establishment. *(Yearly)*

ENGL 3127. British Literature from 1870 to World War I. (3) Readings emphasizing such cultural and literary developments as realism and the impact of science, art for art's sake, problems of religious faith and of sexuality, moral and political issues relating to colonialism, British imperialism, and new techniques in art and literature. *(Yearly)*

ENGL 3128. British Literature Since World War I. (3) Readings reflecting developments such as the decline of Britain as a world power, the intellectual disillusionment following World War I, the impact of psychological and social theory, and literary innovation and experimentation. *(Alternate years)*

ENG 3132. Introduction to Contemporary American English. (3) Introduction to the study of word formation, the sound system, and the structure of contemporary American English, including characteristics and applications of traditional grammar. *(Fall, Spring)*

ENGL 3140. Colonial and Early American Literature. (3) Origins of American literature, from Colonial times to Washington Irving, including such authors as Edwards, Taylor, Franklin, Crevecoeur, Freneau, Brown. *(Alternate years)*

ENGL 3141. American Literature of the Romantic Period, 1820-1870. (3) Important writers and ideas of the period of American romanticism, from Irving through Whitman, including such authors as Poe, Emerson, Thoreau, Hawthorne, Melville. (*Yearly*)

ENGL 3142. American Literature of the Realistic and Naturalistic Periods, 1870-1920. (3) Important writers and ideas of American literature from Whitman through the period of World War I, including such authors as Dickinson, Twain, Howells, James, Crane, Dreiser, Frost. (*Yearly*)

ENGL 3143. Modern American Literature, 1920 to Present. (3) Important writers and ideas of modern American literature, including such authors as Faulkner, Eliot, Hemingway, Cummings. (*Yearly*)

ENGL 3156. Native American Indian Literature. (3) (X) Introduction to American Indian Literature, ranging from oral traditions through contemporary writers. (*Yearly*)

ENGL 3200. Writing in the Discipline of English. (3) (W) Prerequisite: English major or minor or permission of the Department. Intensive practice in writing persuasion and argument in the discipline of English, with emphasis on techniques in research and documentation based on selected texts in literature, rhetoric/writing, or linguistics/language. Restricted to English majors and minors, except through permission of the Department. *(On demand)*

ENGL 3852. Independent Study. (1-3) Prerequisite: consent of the Department. Individual investigations and appropriates exposition of the results. (Unless special permission is granted by the Department Chair, no more than six hours of 3852 may apply toward the English major.) *(Fall, Spring, Summer)*

ENGL 4002. Women and Literature. (3) Selected topics focusing on women and literature, such as images of women, women as writers, and women as literary critics. With permission of the English Department, may be repeated for credit as topics vary. (However, only six hours may be used for the requirements for the English major.) (*Yearly*)

ENGL 4008. Topics in Advanced Technical Communication. (3) Prerequisites: ENGL 2116 and COMM 1101. Exploration, both theoretically and practically, of the interrelation of written, oral, and graphic communication within technical rhetorical contexts. May be repeated once for additional credit with the approval of the English Department. (*On demand*)

ENGL 4050. Topics in English. (3) Special topics not included in other courses. May be repeated for additional credit with approval of the English Department.*(On demand)*

ENGL 4090. Major Authors. (3) The works, ideas, and life of one to three significant authors. With permission of the English Department, may be repeated once for credit as long as different authors are considered. *(On demand)*

ENGL 4102. Classics in British Children's Literature. (3) Prerequisites: ENGL 3102 or 3103 or 3104; or departmental permission. Focuses on pivotal works in the history of British and British Colonial Children's Literature. *(Fall)*

ENGL 4103. Classics in American Children's Literature. (3) Prerequisites: ENGL 3102 or 3103 or 3104; or departmental permission. Focuses on pivotal works in the history of American Children's Literature. *(Spring)*

ENGL 4104. Multiculturalism and Children's Literature. (3) Prerequisites: ENGL 3102 or 3103 or 3104; or departmental permission. Focuses on works that represent one or more kinds of cultural, ethnic, or social diversity of the United States and other national literatures. *(Fall)*

ENGL 4114. Milton. (3) A study of the major poems and selections from the minor works of Milton. *(On demand)*

ENGL 4116. Shakespeare's Early Plays. (3) A study of 10 representative plays from the comedies, histories, and tragedies written 1590-1600. (*Fall, Spring*)

ENGL 4117. Shakespeare's Late Plays. (3) A study of 10 representative plays from the period 1600-1611, including the late tragedies and tragi-comedies. (*Fall, Spring*)

ENGL 4121. The 18th-Century British Novel: Man, Woman, Manners, and Morals. (3) The novel as narrative form and as mirror of the individual in society. Emphasis on fiction by Defoe, Richardson, Fielding, Sterne, Austen, with further readings in the novel of manners and the Gothic romance. *(On demand)*

ENGL 4122. The Victorian Novel. (3) Readings in British fiction during the triumph of the novel in the19th century, emphasizing major developments in realism, romance, naturalism. *(On demand)*

ENGL 4123. The Modern British Novel. (3) Representative British novels that embody the cultural and literary developments of the 20th century: the impact of two world wars, the influence of important psychological and economic factors of modern life and their relationships to new techniques in art and literature.(*Alternate years*)

ENGL 4124. Modern Irish Literature. (3) Readings in Irish literature since 1885, with consideration of the mythology, folklore, and social history of Ireland as they are expressed in poetry, drama, and fiction. *(On demand)*

ENGL 4131. British Drama to 1600, Excluding Shakespeare. (3) A survey of the development of British drama to 1600, with representative plays from the Mystery-Miracle Cycles, the Morality Plays, and Tudor drama, including Lyly, Kyd, Marlowe, Peele, Greene, Dekker. (*On demand*)

ENGL 4132. British Drama from 1600-1642, Excluding Shakespeare. (3) A survey of Jacobean and Caroline drama, including plays by Jonson, Beaumont and Fletcher, Webster, Middleton, Shirley, Ford. *(On demand)*

ENGL 4133. British Drama of Wit and Intrigue, 1660-1780. (3) The famous bawdy comedy of manners and the heroic drama of the Restoration, followed by the sentimental comedy and satiric burlesque of the 18th century. *(On demand)*

ENGL 4143. The American Novel of the 19th Century. (3) Major novelists and traditions from the beginnings of the American novel through the rise of realism, including such novelists as Hawthorne, Melville, Twain, Howells, James. (*Alternate years*)

ENGL 4144. The American Novel of the 20th Century. (3) Major novelists and traditions from the emergence of naturalism to the present, including such novelists as Crane, Dreiser, Hemingway, Faulkner. (*Yearly*)

ENGL 4145. Literature of the American South. (3) Selected works of Southern writers which reflect literary and cultural concerns from Colonial times to the present, including such authors as Poe, the early humorists, local color writers, Chopin, Faulkner, Warren, O'Connor, Welty. (*Yearly*)

ENGL 4146. Contemporary Jewish-American Literature. (3) (X) An introduction to the scope and shape of the contemporary Jewish-American literary tradition. Such writers as Bellow, Malamud, Roth, Singer, and Potok will be studied. (*Alternate years*)

ENGL 4147. Early Black American Literature. (3) Prerequisite: ENGL 2301. A survey of significant writings by black Americans before the Harlem Renaissance. (*Alternate years*)

ENGL 4148. Twentieth-Century Black American Literature: Prose. (3) Prerequisite: ENGL 2301. Intensive study of selected black American 20th-century writers of fiction and nonfiction, beginning with the Harlem Renaissance. (*Alternate years*)

ENGL 4150. Contemporary Poetry. (3) Poetry in English (including translations) since 1940. (*On demand*)

ENGL 4151. Modern Drama. (3) Representative Continental, British, and American plays, from Shaw to the present.(*Alternate years*)

ENGL 4152. Modern European Literature. (3) Selected modern European authors, translated into English, whose works have been of special interest to readers and writers of British and American literature. *(On demand)*

ENGL 4153. Contemporary Fiction. (3) Selected present-day fiction, with an emphasis upon works from outside the United States and Britain. Works not originally in English will be studied in translation. *(On demand)*

ENGL 4155. Pan-African Literature. (3) Introduction to significant Pan-African literature, emphasizing the oral tradition, selected works of major authors in the Caribbean and Africa, and the relationships of these traditions to American, British and other literary traditions. Works not originally written in English will be studied in translation. (*On demand*)

ENGL 4156. Gender and African-American Literature. (3) Prerequisites: ENGL 2100 and 2301 or permission of instructor. Exploration of the intersection of gender and African-American Literature, focusing on either Black women writers or Black male writers, or a combination in dialogue. Cross-listed as AAAS 4106. *(Alternate years)*

ENGL 4157. African-American Poetry. (3) Prerequisites: ENGL 2100 and 2301 or permission of instructor. Intensive study of African-American poetry, focusing on one period or traversing several. Cross-listed as AAAS 4107. *(Alternate years)*

ENGL 4158. African-American Literary Theory and Criticism. (3) Prerequisites: ENGL 2100 and 2301or permission of instructor. History of an African-American approach to literary analysis, including a practicum in modern criticism. Cross-listed as AAAS 4108. *(Alternate years)*

ENGL 4161. Modern English Grammar. (3) A study of the structure of contemporary English, with an emphasis on descriptive approaches. (*Yearly*)

ENGL 4165. Language and Culture. (3) Readings in and discussion and application of the interrelationships between language and culture, including basic introduction to contemporary American dialects and to social contexts of language. (*Yearly*)

ENGL 4166. Comparative Language Studies for Teachers. (3) Prerequisite: ENGL 3132 or permission of Department. An introductory course designed to aid the teacher of English as a Second Language in comparing the systems of sound and structure of another language with those systems in English. (*Yearly*)

ENGL 4180. Theories of Technical Communication. (3) Prerequisite: ENGL 2116. Rhetorical, psychological, and anthropological theories which underscore the interrelations of written and graphic communication within technical, rhetorical contexts. *(Fall)*

ENGL 4181. Writing User Documents. (3) Prerequisite: ENGL 2116. Researching and analyzing audiences to write publishable instructions. This includes the production, testing, and revision of tutorials, reference manuals and on-line documents for users of computers and other devices. *(Spring)*

ENGL 4182. Writing and Designing Computer-based Documents. (3) Prerequisite: ENGL 2116. Theoretical and practical exploration of desktop publishing. Students will write and publish camera-ready documents by rhetorically integrating text and graphics using computer aids. *(Fall)*

ENGL 4183. Editing Technical Documents. (3) Prerequisite: ENGL 2116. Document editing, including copy editing, proofreading, substantive editing, and project management. *(Spring)*

ENGL 4202. Writing Poetry. (3) Prerequisite: ENGL 2126 or 2127, or permission of instructor. Further study of and practice in the writing of poetry within a workshop format. May be repeated once for credit with the consent of the English Department. (*Fall, Spring) (Evenings*)

ENGL 4203. Writing Fiction. (3) Prerequisite: ENGL 2126 or 2128, or permission of instructor. This course provides

further study of and practice in the writing of fiction within a workshop format. May be repeated once for credit with the consent of the English Department. (*Fall, Spring) (Evenings*)

ENGL 4204. Expository Writing. (3) (W) Writing of essays, criticism, and various forms of exposition. (*Fall, Spring) (Evenings*)

ENGL 4205. Advanced Expository Writing. (3) Prerequisite: ENGL 4204. May be repeated once for credit with permission of the English Department. (*Alternate years*)

ENGL 4208. Poetry Writing Workshop. (3) Prerequisite: ENGL 4202. Designed for advanced writers of poetry. Focuses primarily on student work and peer criticism of it. May be repeated once for credit with permission of Department. (*Yearly*)

ENGL 4209. Fiction Writing Workshop. (3) Prerequisite: ENGL 4203. Designed for advanced writers of fiction. Focuses primarily on student work and peer criticism of it. May be repeated once for credit with permission of Department. (*Yearly)*

ENGL 4210. Greek and Roman Drama In Translation. (3) A study of selected plays of Aeschylus, Sophocles, Euripides, Aristophanes, Plautus, Terence, and Seneca with emphasis on dramaturgy and the development of the Greek and Roman theater. (*On demand*)

ENGL 4211. Chaucer. (3) The poetry of Geoffrey Chaucer, including The Canterbury Tales and Troilus and Criseyde. (*Alternate years*)

ENGL 4251. Literary Criticism Through Arnold. (3) The major schools and critics of literary criticism. (*On demand*)

ENGL 4252. Modern Literary Criticism. (3) Theories of the modern schools of criticism. (*On demand*)

ENGL 4254. Teaching English/Communication Skills to Middle and Secondary School Learners. (1-3) Approaches to the teaching of English, including recent theories and research related to writing and literary study, designed primarily for teaching in grades 6-12. *(Yearly)*

ENGL 4260. History of the English Language. (3) Origins and development of the English language, both spoken and written, from its earliest forms to contemporary usage. (*Yearly*)

ENGL 4263. Linguistics and Language Learning. (3) Readings in, discussions of, and application of linguistically oriented theories of language acquisition, directed toward gaining an understanding of language-learning processes and stages. (*Alternate years*)

ENGL 4264. Literacy in Family and Community. (3) Exploration of literacy issues and outreach in schools, agencies, and work sites. *(Spring)*

ENGL 4290. Advanced Creative Project. (3) Prerequisite: ENGL 4208 or 4209 or permission of the instructor. The planning, writing, and polishing of a work of at least 20 pages of poetry or at least 40 pages of fiction or creative non-fiction by advanced undergraduate or graduate students with the guidance of a member of the Department's creative writing faculty. The final work may be a single piece or a collection of pieces and will evolve under the supervision of the primary instructor. With permission of the Department, students who took the course as undergraduates may repeat as graduate students. (*On demand*)

ENGL 4400. English Composition Practicum. (W) (1-3) Prerequisite: consent of the instructor. Through supervised tutorial experience and seminars, this course introduces the student to current developments concerning composition and to a variety of methods for teaching English composition. This course is highly recommended for those planning to teach or those currently engaged in teaching. With permission of the English Department may be repeated once for credit. (*Fall, Spring*)

ENGL 4410. Professional Internship. (3 or 6) Prerequisites: permission of English Internship Coordinator. Restricted to juniors, seniors, graduate students majoring in English or minoring in English or Communications who have at least a 2.5 GPA and a course in professional communication (e.g., journalism, technical communication, public relations, public relations lab, or mass media). Students work 8-10 hours (3 hours credit) or 16-20 hours (6 hours credit) per week in a placement arranged by the Internship Coordinator. Only three credit hours may be applied to the English major at either the undergraduate or graduate level; three additional hours may be counted as a University or Communications elective. (*Fall, Spring, Summer*)

ENGL 4852. Independent Study. (1-3) Prerequisite: Consent of Department. Individual investigations and appropriate exposition of the results. (Unless special permission is granted by the Department Chair, no more than six hours may apply toward the English major.) May be repeated for additional credit with approval of the English Department. (*Fall, Spring, Summer*)

ENGINEERING (ENGR)

ENGR 1201. Introduction to Engineering Practice and Principles I. (2) An introduction to the different disciplines within engineering, the College's computing system, personal and professional development, teamwork, project planning, communication skills, and conceptual design engineering within a multi-disciplinary format. *(Fall, Spring) (Evenings)*

ENGR 1202. Introduction to Engineering Practice and Principles II. (2) Applications in the disciplines of Civil, Computer, Electrical, and Mechanical Engineering involving individual and team assignments. Interdisciplinary classroom sessions include engineering problem solving, critical and creative thinking, project planning, and engineering design. Disciplinary team projects incorporate tools and techniques of the major. *(Fall, Spring) (Evenings)*

ENGR 3590. Engineering Cooperative Education Experience. (0) This course is required of Co-op students during the semester they are working. (*Fall, Spring, Summer)*

ENGR 3670. Total Quality Systems. (3) Prerequisite: Junior or Senior status and permission of instructor. An interdisciplinary approach to principles and practice in the applications of continuous quality improvement (CQI) and Total Quality Management (TQM). Classroom work on major applications, re-engineering processes; process mapping, personal effectiveness and time management; technical presentations; CQI tools, statistical process control, designed experimentation; management and planning tools, engineering economy, and case studies; assignments and projects in team building, communication, and group problem solving. *(Spring)*

EARTH SCIENCES (ESCI)

ESCI 1101. Earth Science-Geography. (3) (S) Basic geographical principles and processes in physical geography and the earth sciences: geographic locational methods, earth-sun relationships, earth radiation balance, atmospheric tempreature and pressure, interpretation and simple forecasting of weather from mapped data, interpretation of soil-moisture and evapotranspiration balances, soil, climate systems, and biomes. *(Fall, Spring) (Evenings)*

ESCI 1101L. Earth Science-Geography Laboratory. (S) (1) Prerequisite or co-requisite: ESCI 1101. Experimental study and investigation of the basic principles and processes in physical geography and the earth sciences; geographic locational methods, earth-sun relationships, earth radiation balance, atmospheric temperature and pressure, interpretation and simple forecasting of weather from mapped data, interpretation of soil-moisture and evapotranspiration balances, climate systems and biomes. One laboratory period of two hours per week. *(Fall, Spring) (Evenings)*

Although the laboratory and lecture sections of ESCI 1101 are taught as separate courses, it is strongly recommended that students take ESCI 1101L concurrently with ESCI 1101. Students with scheduling problems or students not fulfilling the University science and technology requirements may take the lecture without the laboratory. Students fulfilling the University science and technology requirements must either: (a) Take ESCI 1101 and ESCI 1101L concurrently; or (b) Take ESCI 1101L in a semester subsequent to taking ESCI 1101.

ESCI 2101. The Environmental Dilemma. (3 (V Nature, causes, and responses to major environmental problems. *(Yearly)*

ESCI 2105. Oceanography. (3) (S) Oceanography with emphasis on physical, chemical, and geological aspects of the world oceans. Oceanic circulation, seawater composition and chemistry, and marine sedimentation and geology. (*On demand*)

ESCI 2200. Introduction to Earth Sciences Research. (3) Prerequisites or corequisites: ESCI 1101; GEOL 1200 and 1200L. Basic techniques common to research in all of the earth sciences. Research design and organization, utilization of literature resources, and the use of quantitative methods. (*Fall, Spring) (Evenings*)

ESCI 2210. Field Methods in the Earth Sciences. (4) Prerequisites: ESCI 1100; GEOL 1200, 1200L; and ENGL 2116 or consent of instructor. Field techniques used in studies of geology, topography, and earth sciences. Skills related to the collection and presentation of scientific data emphasized. Three lecture hours, two hours of lab per week. Earth Sciences majors should take ESCI 2210 as soon as possible after completion of ESCI 1101 and 1200-1200L. (*Spring, Fall*)

ESCI 3000. Selected Topics in Earth Sciences. (1-4) Prerequisite: ESCI 1101 or GEOL 1200-1200L and consent of instructor. In-depth treatment of specific topics selected from one of the fields of the earth sciences. May be repeated for credit as topics vary. (*Yearly*)

ESCI 3150. Natural Environments of North America. (3) Prerequisites: ESCI 1101 or GEOL 1200-1200L. Regional geomorphology and ecology of North America with emphasis on development, maintenance, and interaction of the geomorphic and ecological provinces. (*On demand*)

ESCI 3170. Environmental Quality Management. (3) Selected methods of air and water resource analysis with emphasis on conceptual models and statistical techniques of environmental and risk assessment. *(Fall)*

ESCI 3180. Environmental Impact Analysis. (3) Prerequisite: junior-senior standing. Environmental impact requirements and associated procedures, guidelines, and methods of assessing physical environmental impacts. Three hours per week of combined lecture and supervised field work leading to the preparation of an environmental impact statement for a locally proposed action. (*On demand*)

ESCI 3210. Soil Science. (3) Prerequisites: GEOL 1200, 1200L. Corequisite: CHEM 1251 or consent of the instructor. Study of soils-forming processes, with emphasis on management and use of soils. Two hours of lecture, three hours of lab per week with occasional field trips. (*Fall*)

ESCI 3240. Boundary-Layer Meteorology. (4) Prerequisites: ESCI 1101, MATH 1241, or consent of instructor. Examines the flows of energy, water, and gases within the planetary boundary layer and the exchange of energy and mass at the earth's surface. Theories of interactions within the boundary-layer. Three hours of lecture, three hours of lab. *(Spring)*

ESCI 3250. Dynamic Meteorology. (4) Prerequisite: ESCI 1101 and MATH 1241 or consent of instructor. In-depth examination of atmospheric dynamics, including the nature of thermodynamics and water vapor, horizontal motion in the atmosphere, characteristics of fluid flow applied to the atmosphere, and the general circulation models. Three hours of lecture and one three-hour lab per week. (*Fall*)

ESCI 3251. Synoptic Meteorology. (4) Prerequisite: ESCI 3250. An extension of ESCI 3250 to include atmospheric modeling, analysis of air mass structure, synoptic analysis with quantitative forecasting techniques, severe storm characteristics, wind shear, boundary-layer meteorology, and techniques for differentiating climatic regime traits and analysis of their variation through time. Three hours of lecture and one three-hour lab per week. (*On demand*)

ESCI 3252. Weather Analysis Laboratory. (1) Prerequisite or corequisite: ESCI 3250 and consent of instructor. Weather observation, meteorologic data collection and analysis, and techniques of weather forecasting. May be repeated for credit. (*On demand*)

ESCI 3500. Earth Sciences Cooperative Education Experience. (O Enrollment in this course is required for the Department's earth sciences cooperative education students during each semester that they are working. Evaluation is *Pass/No Credit.* (*Fall, Spring, Summer*)

ESCI 3501. Earth Sciences Cooperative Education Seminar. (1) This course is required of earth science cooperative education students in each semester following a work assignment for presentation of earth science reports on the co-op learning experience. (*Fall, Spring, Summer*)

ESCI 4000. Selected Topics in Earth Sciences. (1-4) Prerequisites: ESCI 1101, GEOL 1200-1200L, or permission of the instructor. In-depth treatment of specific topics selected from one of the fields of the earth sciences. May be repeated for credit as topics vary. *(On demand)*

ESCI 4140. Hydrologic Processes. (4) Prerequisite: ESCI 1101 or GEOL 1200-1200L. Atmospheric, soils, and geologic aspects of surface and ground water processes. Three lecture hours and one three-hour lab per week. (*Fall*)

ESCI 4150. Applied Climatology. (3) Prerequisite: ESCI 3250 or consent of instructor. Methods of acquiring and analyzing climatic data in various types of applied problems. Emphasis on methods to assess and reduce the impact of weather and climate upon human activities. (*Spring*)

ESCI 4155. Fluvial Processes. (4) Hydrologic and geomorphic study of the transport of water and earth materials within stream systems. Erosion, mass wasting, open channel flow, sediment transport, flooding, stream channel morphology, morphometry of drainage basins, and related topics. Three lecture hours, three lab hours per week. (*Spring*)

ESCI 4170. Fundamentals of Remote Sensing. (4) Prerequisite: ESCI 1101 or GEOL 1200, or consent of instructor. Physical fundamentals of remote sensing and overview of airborne and satellite systems operating in the visible, infrared, and radar regions, and a review of applications for resource exploration, environmental studies, land use and land cover analysis, and natural hazards. One 2-1/2 hour lecture, and one three-hour lab per week. (*On demand) (Evenings)*

ESCI 4180. Digital Image Processing in Remote Sensing. (4) Prerequisite: ESCI 4170 or consent of instructor. Scientific and computational foundations of digital image processing techniques for extracting earth resource information from remotely sensed data. Three lecture hours and three lab hours per week. *(Spring)*

ESCI 4222. Watershed Science. (3) Prerequisites: Earth Science Majors and M.A. Geography students: ESCI 4140 or 4155 or GEOL 4145; Biology Majors and M.S. Biology students: BIOL 4149 and consent of the instructor; Civil Engineering Majors and M.S.C.E. students: CEGR 3141 or 5144 and consent of the instructor; all others require the consent of the instructor. Examinations of the cycling of water and chemical elements in natural and perturbed watersheds with emphasis on linkages between the hydrologic and biogeochemical processes which control runoff water quality. Topics include runoff processes, evapotranspiration, nutrient export and stream, riparian and hyporheic zone hydrochemical dynamics. *(Spring)*

ESCI 4233. Geoenvironmental Site Characterization. (4) Prerequisites: Earth Sciences, Geology, and M.A. Geography majors: ESCI 4140 or 4155. Others require consent of the instructor. Advanced field-based examination of hydrologic and geologic condition in the southeastern United States within the context of current state and federal regulatory requirements and site characterization activities currently performed by professional environmental geoscientists. Hydrologic investigation and water quality characterization, and geological and geophysical site investigations. *(Summer)*

ESCI 4400. Internship in Earth Sciences. (3-6) Prerequisite: consent of the Department. Research and/or work experience designed to be a logical extension of a student's academic program. The student must apply to Department for an internship by submitting a proposal which specifies the type of work/research experience preferred and how the internship will complement his or her academic program. The Department will attempt to place the selected students in cooperating community organizations to complete specified research or work-related tasks which are based on a contractual arrangement between the student and community organization. The student can receive three to six hours credit, depending on the nature and extent of the internship assignment. (*On demand*)

ESCI 4600. Earth Sciences Seminar. (1) (O) Prerequisites: ESCI 1101, 1101L, GEOL 1200, 1200L and senior standing for Earth Sciences and Geology majors or permission of the instructor. Advanced seminar series examining major historical and modern research themes in the Earth Sciences. Course work consists of a series of independent and group oral presentations. The seminar meets weekly for two hours. Course may be repeated for credit as topic varies. *(Fall, Spring)*

ESCI 4800. Individual Study in Earth Sciences. (1-4) Prerequisite: permission of the Department and credit hours established in advance. Tutorial study or special research problems. May be repeated for credit as topics vary. (*On demand*)

CIVIL ENGINEERING TECHNOLOGY (ETCE)

ETCE 3111. Structural Analysis I. (3) Prerequisite: elementary courses in statics and strength of materials. Basic concepts and principles of structural analysis relating to beams, trusses, and frame structures. Analysis of statically determinate structures under fixed and moving loads, influence lines for moving loads. Approximate analysis of indeterminate structures. Emphasis on practical aspects of structural analysis. (*Fall*)

ETCE 3112. Structural Analysis II. (3) Prerequisite: ETCE 3111. Deflection of structures. Analysis of statically indeterminate structures using the methods of three-moments, consistent distortions, slope deflection, and moment-distribution. An introduction to matrix methods of structural analysis. (*Spring*)

ETCE 3121. Foundations and Earthwork. (3) Study of basic design and construction of foundations. Background theories are generally introduced in concise forms as formulas or charts. Emphasis on practical aspects of foundation design and earthwork construction. *(Fall)*

ETCE 3132. Hydraulics. (3) A study of the fundamental principles of hydraulics and their applications in engineering practice, including the fundamentals of fluid flow through orifices, tubes and pipes, in open channels, and over weirs. *(Spring)*

ETCE 3150. Hydraulics and Materials Laboratory. (1) (W) Laboratory designed to provide the student with: (1) An understanding of apparatus, techniques, and procedures used to measure hydraulic flow, pressure, and head loss in open and closed conduits. Verification of some of the principles of hydraulics relating to fluid flow through Venturi meters, orifices, tubes and closed conduits, in open channels and over weirs; (2) An understanding of the apparatus, techniques, procedures, and test standards used to test construction materials. Three laboratory hours per week. (*Spring*)

ETCE 3151. Soil Testing Laboratory. (W) (1) Prerequisite or corequisite: ETCE 3121. A laboratory that is designed to familiarize the student with the common laboratory soil tests, and analysis procedures with emphasis on the significance of the various tests, the testing procedures and the detailed computations. Three laboratory hours per week. *(Fall)*

ETCE 3154. Asphalt and Asphalt Mixtures Laboratory. (1) (W) Study of physical properties of asphalt, of aggregates and their combinations, principles and practice in the design, construction and control of asphalt mixtures; laboratory tests for asphalts, aggregates, and mixture design, including specimen preparation and stability evaluation. Three laboratory hours per week. *(Spring)*

ETCE 3211. Reinforced Concrete Design. (3) Prerequisite or corequisite: ETCE 3112. Design of rectangular beams, T-beams, columns, reinforced concrete floor systems, and reinforced concrete footings, according to the ACI code. Quality control of concrete and structural inspection. *(Spring)*

ETCE 3212. Structural Steel Design. (3) Prerequisite: ETCE 3112. Design of beams and columns, floor framing, tension and compression members, bolted and welded connections, according to AISC specifications. *(Fall)*

ETCE 3241. Highway Design and Construction. (3) Introduction to highway planning, economic considerations, and traffic engineering. Design and construction of modern highways including grade separations and interchanges. *(Spring)*

ETCE 3243. Project Management Technology. (3) Use of CPM and other network analysis methods for planning, managing, and controlling projects. *(Fall)*

ETCE 3252. Environmental Laboratory. (1) (W) Prerequisite or corequisite: ETCE 3262. Laboratory on the analysis of water and sewage and problems related to environmental control. Three laboratory hours per week. *(Spring)*

ETCE 3253. Construetion Engineering Technology Field Laboratory. (1) (W) Prerequisite: senior standing. A synthesis of prior work, using fundamental principles as applied in a directed project. Three laboratory hours per week. *(On demand)*

ETCE 3262. Introduction to Environmental Engineering Technology. (3) Prerequisite: ETCE 3132. Study of water supply, treatment, and distribution, and liquid-waste disposal systems. *(Fall)*

ETCE 3281. Cost Estimating . (3) Methods used to estimate costs of construction activities. Develops the methods and procedures for preparing quantity surveys and to estimate labor and equipment requirements. *(Fall)*

ETCE 3293. Building Systems. (3) Basic theory and practical application of heating, ventilation, air conditioning, plumbing and electrical systems in construction. Study of National Fire and Plumbing Codes. *(Spring)*

ETCE 3642. Senior Design Project. (2) (W,O) Prerequisite. Senior standing Civil Engineering Technology consent of the Department. Utilization of students' previous course work to creatively investigate and produce solutions for a comprehensive civil engineering technology project. *(Spring)*

ELECTRICAL ENGINEERING TECHNOLOGY (ETEE)

ETEE 3124. Analysis of Linear Networks II. (4) Prerequisite: ETEE 3133. Prerequisite or corequisite: ETGR 3171. Circuit analysis utilizing network theorems and techniques in the frequency domain. 2nd order responses. Two port network analysis and transfer functions. Bode plots; transformers and filter applications; introduction to fourier analysis. Application of PSPICE for circuit analysis. (*Spring, Summer*)

ETEE 3133. Analysis of Linear Networks I. (3) Prerequisite or corequisite: ETGR 3171 or MATH 1121. Resistive circuits; current and voltage sources; Kirchoff's laws, network theorems, RC and RL circuits; waveform analysis and synthesis; time domain circuit analysis; 1st order natural and forced responses; Laplace Transform fundamentals. Circuit transformations. Intro to frequency domain circuit analysis. Application of PSPICE for circuit analysis. (*Fall, Spring*)

ETEE 3153. ETEE Laboratory I. (1) (W) Prerequisites or corequisites: ETEE 3133 and 3183. Experiments which support concepts and practice covered in ETEE 3133 and 3183. Three laboratory hours per week. *(Fall)*

ETEE 3156. ETEE Laboratory II. (1) (W,S) Prerequisites or corequisites: ETEE 3124. Experiments which support concepts and practice covered in ETEE 3124. Three laboratory hours per week. *(Spring)*

ETEE 3183. Digital Logic Design. (3) Prerequisite: two-quarter course sequence in digital logic circuits. Design of combinational and sequential digital logic circuits. Minimization methods and state assignment techniques. Circuit implementation using MSI, LSI, and programmable circuits. Introduction to computer architecture. *(Fall)*

ETEE 3211. Active Networks I. (3) Prerequisites: ETEE 3124. Rectifiers; amplifiers analysis; transistor biasing; small signal models; feedback amplifier analysis; amplifier frequency response. *(Fall)*

ETEE 3212. Active Networks II. (3) Prerequisite: ETEE 3211. Amplifier frequency response (continued); feedback amplifier frequency response; operational amplifiers and applications. *(Spring)*

ETEE 3213. Industrial Electronics. (3) Prerequisite: ETEE 3124. Prerequisite or corequisite: ETEE 3211. Powerdiodes, bipolar power transistors, thyristors, power MOSFET's and their circuit applications to industrial problems. *(Fall)*

ETEE 3214. Operational Amplifiers with Applications. (3) Prerequisite: ETEE 3211. Idea OP-AMP analysis, practical OP-AMP considerations, linear OP-AMP circuits, nonlinear OP-AMP circuits, practical applications. *(Spring)*

ETEE 3222. Automatic Controls. (3) Prerequisite or corequisite: ETEE 3212. Automatic control concepts; mathematical models; control system components; transient and frequency response; control system design. *(Spring)*

ETEE 3255. ETEE Laboratory III. (1) (W) Prerequisites or corequisites: ETEE 3211 and 3281. Experiments which support concepts and practice covered in ETEE 3211 and 3281. Three laboratory hours per week. *(Fall)*

ETEE 3257. Laboratory III. (1) (W) Prerequisites or corequisites: ETEE 3211 and 3213. Experiments which support concepts and practice covered in ETEE 3211 and 3213. Three laboratory hours per week. *(Fall)*

ETEE 3261. Industrial Instrumentation. (3) Prerequisites: ETEE 3124. Pneumatic and electrical sensors and transducers used for measuring physical processes, such as temperature, pressure, and flow rate; selection criteria; standards and calibration. *(On demand)*

ETEE 3275. Integrated Circuit Applications. (3) Prerequisites: ETEE 3183. Study of the external characteristics of digital and analog integrated circuits. Applications of these circuits in digital systems. Design constraints and considerations due to device limitations. Device selection based upon application requirements. *(Spring)*

ETEE 3281. Computer Design. (3) Prerequisite: Digital logic fundamentals course. Organization and design approaches for computer network systems. LAN design, hardware and software considerations, network operating systems, TCE/IP fundamentals.*(Fall)*

ETEE 3284. Design of Real-Time Systems. (3) Prerequisite: ETEE 3285. Prerequisite or corequisite: ETEE 3281. Characteristics and applications of real-time computer systems, especially as applied to process control, monitoring, and data collection; the computer as a part of the total system, programming for real-time applications; reliability and maintainability; effects of downtime. *(On demand)*

ETEE 3285. Assembly-Language Programming. (3) Prerequisite: Junior standing or consent of the Department. Programming methodology and assembly language programming for the MC68000 series microprocessors. *(Spring)*

ETEE 3286. Microcomputer Applications. (3) Prerequisite: High-level programming language (e.g. BASIC, C, Fortran.) Applied programming of microcomputers for engineering applications using Java. Object-oriented program design methods, Graphical user interfaces for data input and output, computer graphics, and computer animation. *(Spring)*

ETEE 3641. Senior Design Project. (1) (W,O) Prerequisite: Senior standing in Electrical Engineering Technology or consent of the Department. A senior design project with a topic agreed to by student and instructor. Course builds upon technology course work and professional topics seminar. Topics include project planning design, construction, test documentation, and oral presentation of results. . *(Spring)*

FIRE SAFETY ENGINEERING TECHNOLOGY (ETFS)

ETFS 3103. Principles of Fire Behavior. (3) Fundamental principles of fire chemistry and physics, and mechanisms that control enclosure fires. Topics include basic principles of fluid mechanics, thermodynamics, heat transfer, and combustion as far as those subjects relate to fire dynamics; ignition of liquids and solids; flame spread over liquid and solid surfaces and through porous fuel beds; burning rate; diffusion flames and plumes; combustion products; and compartment fires.

ETFS 3113. Building Fire Safety. (3) Construction standards and codes to ensure acceptable levels of fire safety in buildings. Topics include anatomy of building construction, building construction features affecting fire performance, fundamentals of reading plans and specifications, the traditional code approach to passive fire protection, trade-offs between active and passive fire protection, concepts of rational fire design for structural members, and performance-based fire design as an alternative to traditionally prescriptive codes.

ETFS 3123. Industrial Hazards & Electricity. (3) Typical industrial hazards encountered including: compressed gasses, chemicals, bio-toxins, radiation sources, boilers and ovens. Introductory concepts and methods of analysis of AC & DC circuits, electrical switchgear, and rotating machinery. Compliance & reporting issues in an industrial setting. Safety procedures and safety equipment will also be discussed in regards to working as a fire safety engineer.

ETFS 3124. Risk Management for the Emergency Services. (3) An exploration of management and organizational principles with emphasis on controlling the risk associated with operations in the emergency services. In depth discussion of recognizing and controlling risk, personnel accountability, incident management systems and post-incident analysis as related to the emergency services. Critical analysis of private protection measures available to reduce loss potential.

ETFS 3144. Active Fire Protection. (3) Review of fire suppression, alarm, and smoke control systems. Topics include fixed and portable suppression systems, fire suppression agents and extinguishing mechanisms, fire detection devices, fire protective detection and signaling systems, smoke production in fires and principles of smoke movement and management.

ETFS 3183. Fire Safety Engineering Problem Analysis. (3) Prerequisite: ETFS 3103. Methods of solving fire safety engineering problems. Topics include enclosure fire radiation heat transfer calculations; calculations of vent flows in enclosure fires; estimating ignition, flame spread, and heat release rate properties of materials on the basis of experimental data; smoke filling of enclosures; and conduction heat transfer through fire protective materials.

ETFS 3233. Applied Fire Engineering Design and Analysis. (3). Prerequisite: ETFS 3103. Application of fire safety engineering technology in fire design and analysis of fires. Topics include computer modeling of compartment fires and emergency evacuation of buildings, structural fire design, sprinkler system design, performance-based design, and fire investigation and reconstruction.

ETFS 3611. Professional Leadership Seminar. (1) (W,O) This course is to provide a framework of executive-level competencies by focusing primarily on areas and issues of personal effectiveness. The issue of command perspective vs. a first line fire fighter perspective are examined. The course includes case study analysis, role-playing and experiential activities. Students will develop desirable goals in the areas of their professional, personal community, and family life. Course topics include leadership, multiple roles, decision skills, influencing leaders, coaching and mentoring, and effective use of personal computing.

ETFS 4123. Command and Control of Major Disasters. (3) This course focuses on the commanding officer's responsibility while conducting major operations involving multi-alarm units and man-made disasters that may require interagency or jurisdictional coordination. Earthquakes, hurricanes, terrorism, hazardous materials releases, tornadoes, and floods are some of the topics covered. Emphasis is placed on rapid fireground decision making, advanced incident command, command and control, safety, personnel accountability, hazard preparedness, mitigation, response, recovery, evacuation, sheltering and communications.

ETFS 4243. Research Investigation. (3) (W,O) Application of practical, up-to-date review of fire research and its application. The transfer of research and its implications for fire prevention and protection programs are addressed. Development of a student project and a written report in a specified area in fire administration or fire science technology with faculty supervision. Analytical modeling, technical research, oral and written reporting of progress and findings are required.

ETFS 4323. Advanced Fire Service Administration (3) A study of management theories, leadership philosophies and strategies for the fire service. Emphasis in the course will be on planning, organizing staffing, and evaluating fire protection services. Public fire education, loss prevention principles, and management of resources particular to fire and emergency services are addressed. Discussion of techniques for assessment of public fire protection and its impact on the community and environment.

ENGINEERING TECHNOLOGY (ETGR)

ETGR 3000. Special Topics in Engineering Technology. (1-4) Prerequisite: senior standing in Engineering Technology or consent of the Department. Examination of specific new areas which are emerging in the various fields of engineering technology. The course builds upon the knowledge the students have gained from their engineering technology curriculum. May be repeated for credit. *(On demand)*

ETGR 3071. Engineering Technology Professional Seminar. (1) (W) Provides an introduction to the Department of Engineering Technology, the William States Lee College of Engineering, and UNC Charlotte. Addresses professional issues such as ethics, corporate culture, and team work. Relies heavily on computer usage outside of class. *(Fall, Spring)*

ETGR 3171. Engineering Analysis I. (3) (P) Prerequisites: differential and integral calculus. Methods of solving engineering problems which involve the differentiation and integration of algebraic, trigonometric and logarithmic functions; use of integral tables. *(Fall, Spring, Summer) (Evenings)*

ETGR 3222. Engineering Economics. (2) Principles of evaluating alternative engineering proposals. Compound interest formulas and applications, present worth, equivalent uniform annual value, rate of return, depreciation and depletion, economic feasibility of projects. *(Fall, Spring, Summer)*

ETGR 3223. Geometric Dimensioning & Tolerancing and Metrology. (3) Prerequisite: Knowledge of engineering graphics and machine shop practices. Study of the latest standard and methods available for the application of GD&T in interpretation and design of engineering drawings to assure form, fit and function while maintaining manufacturing efficiency. Study of and laboratory experiences with precision dimensional measuring instrumentation and machines. Two hours of lecture and three hours of laboratory per week. *(On demand)*

ETGR 3233. Computer Graphic Technology. (3) Study of computer graphics as a design drafting tool. Using computer driven plotters and digitizers to prepare engineering drawings and illustrations. *(On demand)*

ETGR 3272. Applied Numerical Methods. (2) (P) Prerequisite: ETGR 3071, ETGR 3171 and a course in programming using a higher level language. Numerical methods for the solution of engineering problems on the digital computer. Emphasis on applications to civil and mechanical engineering technology, using both commercial and student written programs. *(Fall)*

ETGR 3643. Senior Design Project. (3) (W,O) Prerequisite: Senior Standing and permission of academic advisor. A capstone course in which individual students or teams propose and design a device, system, or process using senior level tools and abilities in their chosen disciplines; teamwork skills; instruction and writing practice in problem definition, design objectives, writing proposals and progress reports, creative problem solving, project planning, design evaluation, final formal technical reports and oral presentations. *(Spring)*

ETGR 3695. Engineering Technology Practicum Seminar. (1) Prerequisite: ETMF 3490 or ENGR 3590. Required during the semester immediately following each work assignment for students enrolled in either ETMF 3490 or ENGR 3590; for presentation of engineering reports (verbal and oral) on work done the prior semester. May be repeated for credit. *(Fall, Spring, Summer)*

INDUSTRIAL ENGINEERING TECHNOLOGY (ETIN)

ETIN 3103. Methods Analysis. (3) Analysis of work methods; a study of work measurement systems; regression techniques in formula construction; progress curves. *(On demand)*

ETIN 3123. Production Control Systems. (3) Prerequisite: statistics. Principles, analysis and design of production and inventory planning and control systems. Demand forecasting, production scheduling and control systems and introduction to CPM. *(On demand)*

ETIN 3133. Quality Control. (3) Principles and applications of quantitative methods of quality control to design and production processes. Introduction to design of experiments, process control charts, Pareto charts, and other quality analysis tools for both service and manufacturing industries. *(On demand)*

ETIN 3203. Plant Layout. (3) Prerequisite: ETIN 3103. Designing a plant or office with respect to material handling, machine location, auxiliary services, capital requirements, safety and personnel organization. *(On demand)*

ETIN 3233. Occupational Safety. (3) Causes and prevention of industrial accidents. Hazardous processes and material. Design of accident prevention programs. *(On demand)*

ETIN 3243. Occupational Health Technology. (3) Methodology and philosophy of evaluating and monitoring the work environment for human stresses and toxic substances which affect the health of the worker. Topics include gases, vapors, fumes and dust; radio-activity hazards; occupational diseases; thermal stress; illumination and exhaust ventilation. (*On demand*)

ETIN 3263. Human Factors. (3) Human capabilities and limitations affecting communications and response in man-machine systems. Physiological and psychological fundamentals; anthropometrics. (*On demand*)

MECHANICAL ENGINEERING TECHNOLOGY (ETME)

ETME 3113. Dynamics. (3) Prerequisites: statics, differential and integral calculus. The dynamic behavior of particles; translation, rotation and plane motion of a rigid body, the principles of conservation of energy and momentum. *(Spring)*

ETME 3123. Strength of Materials. (3) Prerequisites: statics, differential and integral calculus. Stress-strain relationships resulting from direct loads, torsional loads and bending loads, and the results obtained from applying more than one of these loads simultaneously. Beam deflection and column loading. *(Fall)*

ETME 3133. Fluid Mechanics. (3) Fundamental principles of fluid mechanics. Topics include manometry, buoyancy, forces on submerged bodies, boundary layers, flow over surfaces, Bernoulli's equation with applications, orifices, pipe losses and an introduction to hydrodynamics. *(Fall)*

ETME 3143. Thermodynamics. (3) Prerequisites or corequisites: differential and integral calculus. Fundamentals of thermodynamics including work and heat; classical approach to first and second laws of thermodynamics; ideal gas, entropy, reversibility, irreversibility, and study of various processes and cycles. *(Spring)*

ETME 3151. Fluid Mechanics Laboratory. (1) (W) Prerequisite or corequisite: ETME 3133. Flow through conduits and in open channels, the experimental determination of fluid specific weights, viscosity and flash and fire points. Flow measuring devices such as orifices, venturi tubes, anemometers and pitot tubes. Laminar-turbulent flow and stability. *(Spring)*

ETME 3152. Stress Analysis Laboratory. (1) (W) Prerequisite or corequisite: ETME 3123. Experiments illustrating stress-strain relationships in engineering materials and the use of brittle coating, photoelasticity and electrical-resistance strain gages. *(Fall)*

ETME 3163. Instrumentation and Controls. (3) Introduction to instrumentation for measurement and control of physical variables, with emphasis on electronic systems. Review of basic circuit analysis, electrical instruments, sensors and measurement principles and a survey of automatic controls from a systems point of view. *(Fall)*

ETME 3213. Machine Design I. (3) Prerequisite: ETME 3123. Prerequisite or corequisite: ETME 3113. Analysis and design of clutches, brakes, belts and roller chain. Indeterminate normal loading, superposition of stresses and deflections, compound stresses, columns and fatigue. Theories of failure. Shaft design, deflections of shafts with nonuniform moments of inertia involving computer verification. Antifriction bearings, engineering materials,

helical compression springs. Small mechanical component and system designs. *(Fall)*

ETME 3223. Machine Design II. (3) Prerequisite: ETME 3213. A continuation of ETME 3213 with emphasis on new methods of problem solving and opportunities to integrate previously attained skills and knowledge into the design and optimization of small machine systems. (*On demand*)

ETME 3243. Senior Design Project. (3) Prerequisite: ETME 3113, 3133, 3143, 3213, and 3163. Students develop solutions to design problems requiring application of skills developed in mathematics and technical specialty courses. Design problem solutions are presented in both written form and to the class in oral presentations. May be repeated for credit. *(Fall, Spring)*

ETME 3251. Instrumentation Laboratory. (1) (W) Prerequisite or corequisite: ETME 3163. Practice in the use of the various instrumentation devices studied in ETME 3163. *(Spring)*

ETME 3252. Thermodynamics and Heat Transfer Laboratory. (1) (W) Prerequisite or corequisite: ETME 3143. Experimentation involving the fundamental principles of thermodynamics and heat transfer, as applied to internal combustion engines, steam engines, engine dynamometers, refrigeration and heat pumps, solar energy systems, and heat exchangers. Three laboratory hours per week. *(Fall)*

ETME 3263. Fluid Power. (3) Prerequisite: ETME 3133. Mechanical and fluid power and the conversion of one to the other. Components and system efficiencies including those consisting of cascaded components. Performance evaluation of such hydraulic components as pumps, motors, valves and metering devices. Viscosity, bulk modulus, noise, optimum performance and system design will be considered. *(On demand)*

ETME 3273. Air Conditioning Systems. (3) Prerequisite: ETME 3143. Functions and operating characteristics of the major components of refrigerating machines, heat pumps, boilers, furnaces, solar collectors, heat exchangers, fans and pumps. Emphasis on sizing, economics and performance characteristics. Includes coverage of psychometric principles and fan and pump laws. *(On demand)*

ETME 3283. Modern Techniques in Energy Conservation and Utilization. (3) Prerequisite: ETME 3143 or consent of the instructor. Survey of current topics that may include solar energy, basic nuclear reactor technology, ammonia-based Rankine cycle, absorption refrigeration cycle, heat pump cycle, techniques for energy conservation in new construction and techniques for retrofitting existing energy utilization systems. *(On demand)*

MANUFACTURING ENGINEERING TECHNOLOGY (ETMF)

ETMF 3111. Manufacturing Processes. (3) Capabilities, limitations, and operating characteristics of families of machine tools and processes; casting, cutting, forming, joining, fabrication, and inspection machinery. (*On demand*)

ETMF 3113. Fundamental of Optics. (3) Prerequisite: algebra, trigonometry, plane geometry, and physics. A phenomenological introduction to applied optics; interactions between light and materials; properties of light; lenses and mirrors; simple optical systems; interference and diffraction; introductions to optical fibers, lasers, and holography. (*On demand*)

ETMF 3114. Thin Films and Optical Coatings. (3) Prerequisite: algebra, trigonometry, plane geometry, and physics. Vacuum technology, process controls, and special techniques used in the fabrication of thin films and the surfaces on which they are prepared; ways in which the optical tribological, and electronic industries utilize these structures in their products. (*On demand*)

ETMF 3131. Computer Integrated Manufacturing (CIM). (3) Automated manufacturing systems involving computers to monitor vendor input, process variations, component selection and routing, and test and evaluation of products. Applications involving integration of computer aided design (CAD) systems with computer aided manufacturing (CAM) systems. (*On demand*)

ETMF 3141. Industrial Applied Optical Systems. (3) Prerequisite: ETGR 3171. The applications of electro-optical technology in manufacturing and industrial systems is investigated. The fundamentals of applied optics, laser theory and semi-conductor optical devices will be reviewed. (*On demand*)

ETMF 3141L. Applied Optical Systems Laboratory. (1) Corequisite: ETMF 3141. Applications of electro-optical technology in manufacturing systems. Laboratory experiments demonstrating the use of lasers in the following manufacturing and industrial applications will be performed: cutting, machining, welding, measurement, marking, and control of processes; machine vision systems, sorting, process control, and real-time quality control; bar code systems; optical character recognition; optical data transmission. (*On demand*)

ETMF 3153. Optics Laboratory. (2) Prerequisite or corequisite: ETMF 3113. Experiments designed to illustrate properties of light and optical systems; reflection and refraction; lenses and lens systems; optical instruments; interference and diffraction; polarized light; laser principles. (*On demand*)

ETMF 3181. Digital Process Control. (3) Prerequisite: ETMF 3164. Applications and programming of microprocessors and programmable controllers for control of manufacturing processes. Interfaces with sensors, actuators, and computer systems. Includes classroom and laboratory demonstrations. (*On demand*)

ETMF 3211. Topics in Precision Manufacturing. (3) Senior seminar in selected areas of modern production of both conventional and micro-miniaturized products; surface mount technology for electronic components; manufacturing in the clean room environment; metrology; manufacture of micro-miniature mechanical systems; vacuum coating and plating systems; systems for automatic process control and product inspection. (*On demand*)

ETMF 3251. CIM Laboratory. (2) (W) Experiments with computer control of processes, including numerical control and robotics. Measurement of physical variables for monitoring, controlling, and testing production operations. Application of microprocessors and micro computers to system control and status reporting. One class hour, three lab hours per week. *(On demand)*

ETMF 3490. Manufacturing Engineering Technology Practicum. (O) Directed individual study in a selected area of Manufacturing Engineering Technology exploring the practical applications and practices in industry or research. (*On demand*)

FINANCE (FINN)

FINN 3000. Topics in Finance. (3) Prerequisite: junior standing. Topics from the area of Finance. The course may be repeated for credit. (*On demand*)

FINN 3120. Financial Management. (3) Prerequisites: MATH 1120, STAT 1220; ACCT 2121, 2122, ECON 1201, 1202; INFO 2130; Business major, Junior standing. Principles and problems of financial aspects of managing capital structure, least-cost asset management, planning and control. Computer application will be included where appropriate. *(Fall, Spring, Summer) (Evenings)*

FINN 3220. Financial Analysis. (3) Prerequisite: FINN 3120. Emphasis is on interpretation of financial statements and other data for internal management purposes and external commercial credit decisions. Practical application is stressed through use of business cases and the analysis of a NYSE firm selected by the students. (*Fall, Spring, Summer) (Evenings)*

FINN 3221. Financial Institutions and Markets. (3) Prerequisite: FINN 3120. A study of financial institutions and money and capital markets which considers their roles in the intermediation process. Special emphasis is focused on the comparative financial policies of financial institutions considered in the context of their market environments. *(Fall, Spring, Summer) (Evenings) (On demand)*

FINN 3222. Investments. (3) Prerequisite: FINN 3120. Major topics are security analysis and portfolio management. The viewpoint is that of the investment professional concerned with evaluation of individual securities and management of security portfolios. (*Fall, Spring, Summer) (Evenings) (On demand)*

FINN 3223. International Financial Management. (3) Prerequisite: FINN 3120. Viewpoints are those of the senior financial officer of a corporation involved in international business and of the international officer of a commercial bank. Topics include the financing of exports and imports, financing of foreign operations, problems of foreign exchange rates and the impact of accounting procedures on financial management. (*Fall, Spring, Summer) (Evenings) (On demand)*

FINN 3224. Applied Business Finance. (3) Prerequisite: FINN 3120. Case studies of the theories and techniques of financial management as they relate to the goal of the financial manager; the maximization of the value of the firm. Topics include financial planning, valuation, financial instruments, financial structure, and capital budgeting. *(On demand)*

FINN 3225. Commercial Bank Management. (3) Prerequisite: FINN 3120. A study of sound and efficient techniques for the management of commercial banks. Topics include industry structure, administrative organization, and management of assets, liabilities and capital. (*Fall, Spring, Summer) (Evenings) (On demand)*

FINN 3226. Financial Theory and Practice. (3) Prerequisite: FINN 3120. Modern financial theory and it's application, including risk theory, market equilibrium asset pricing models, efficient market theory, capital structure theory and applications (including issues surrounding financial distress and bankruptcy), dividend policy, agency problems, informational asymmetry, advanced topics in capital budgeting, and leasing. *(Fall, Spring, Summer) (Evenings) (On demand)*

FINN 3261. Real Estate Finance (3) Prerequisite: FINN 3120. This course covers the fundamentals of real estate finance and investment and includes the topics of: real estate capital markets, mortgage markets, mortgage securitization, real estate contracts and leases, investment analysis, valuation and appraisal, return and risk considerations, and the effects of debt financing, taxation and government regulations on real estate investment. *(Yearly)*

FINN 3271. Principles of Risk Management and Insurance. (3) A study of the different types of nonspeculative risks faced by individuals and businesses and the possible alternative methods of treating such risks. An examination of the specific application of these methods with regard to life, health, property, casualty and liability contracts. *(Fall, Spring, Summer) (Evenings) (On demand)*

FINN 3272. Life Insurance and Professional Financial Planning (3) (W) This course explains the uses of life insurance, annuities, health insurance and Social Security in the financial planning context. It explains the integration of social security benefits, employer-provided benefits, and individually purchased life insurance and investments into comprehensive financial plans. Students successfully completing this course should understand the need for the main techniques of financial planning in contemporary U.S. society. *(Fall)*

FINN 3273. Property and Casualty. (3) Involves an analysis of the needs of business and individuals for property and casualty insurance and the nature of available coverage. An examination of property and casualty insurance products is included, emphasizing the study of case law, the use of contracts and contract language underwriting procedures, actuarial science, reinsurance, accounting, non-insurance risk transfer, and claims handling. *(On demand)*

FINN 3275. Advanced Risk Management. (3) Prerequisites: FINN 3271 and FINN 3273 (or consent of Department Chair). Provides an in depth analysis of techniques that firms can use to handle non-speculative pure risks. Risk handling devices and how they are applied to business problems are discussed. Some of the techniques examined include self-insurance, captives, financial instruments and retention. Included is an analysis of loss data and how it can be utilized to select a risk handling technique. *(On demand)*

FINN 3276. Employee Benefits. (3). Provides an analysis of group plans (e.g. medical, life, disability and retirement), stock options, profit sharing plans and statutory benefits (e.g.: workers' compensation and social security). Includes a review of legislation affecting these plans. Non-traditional plans (e.g. child care, flex time and wellness programs) are also examined. *(Spring)*

FINN 3277. Legal Aspects of Insurance. (3) Prerequisites: FINN 3271. Provides an in-depth analysis of the impact that statutes, regulations and litigation have on risk management and insurance. Will examine the impact the courts have had on claims handling. *(On demand)*

FINN 3500. Cooperative Education Experience. (0) Enrollment in this course is for the University cooperative education students during each semester they are working in a co-op position. (*Fall, Spring, Summer*)

FINN 3800. Directed Study. (1-3) Prerequisites: Consent of the Department and Junior standing. Enrollment granted only by permission of the faculty with whom the work will be performed. The student's work assignments will be designed by the student and faculty member who will oversee the project of study. The credit hours will be determined prior to enrollment and will be based on the particular project undertaken. (*On demand)*

FINN 4158. Student Managed Investment Fund I. (3G) Prerequisites: FINN 3120 and FINN 3222. Management of an actual portfolio consisting of a portion of the University's Endowment Fund. Admission is by permission of instructor. Students selected for the course are required to take FINN 4159. *(Fall)*

FINN 4159. Student Managed Investment Fund II. (3G) Prerequisites: FINN 3120 and FINN 3222. Management of an actual portfolio consisting of a portion of the University's Endowment Fund. Admission is by permission of instructor. Student cannot enroll in this course without successfully completing FINN 4158. *(Spring)*

FOREIGN LANGUAGE (FORL)

Languages in addition to those offered in the regular program may be available on demand Labs may be required

FORL 1201. Elementary Foreign Language. (3-4) Prerequisite: permission of the Department. Fundamentals of grammar and phonetics, reading, writing and conversation of a selected language. *(On demand)*

FORL 1202. Elementary Foreign Language. (3-4) Prerequisite: FORL 1201 or permission of the Department. Continuation of 1201. *(On demand)*

FORL 2201. Intermediate Foreign Language. (3-4) Prerequisite: FORL 1202 or permission of the Department. Grammar review, conversation, composition and readings based on the culture and civilization. *(On demand)*

FORL 2202. Intermediate Foreign Language. (3-4) Prerequisite: FORL 2201 or permission of the Department. Grammar, conversation, composition and readings based on students' needs. *(On demand)*

FORL 3050. Topics in Language, Literature and Culture. (3) (WL) Studies in a selected field of interest. May be repeated for credit. (*On demand*)

FORL 3160. European Cinema. (3) (WAO) Prerequisites: Sophomore standing and ENGL 1102 or equivalent. Introduction to films of the various national cinemas of Europe and strategies for analyzing and discussing film critically and effectively. Lectures, discussions, viewing films, writing assignments, reviews, critiques and analyses. (*Spring, Fall*)

FORL 3800. Directed Individual Study. (1-3) Prerequisite: Permission of the Department; normally open only to FL majors and minors. Individual work on a selected area of study. To be arranged with the instructor, generally during the preceding semester, and by special permission only. May be repeated for credit. (*On demand*)

FORL 4050. Topics in Foreign Language. (3) Prerequisite: Senior standing or permission of the Department. Studies in a selected field of interest. May be repeated for credit with change of topic. *(On demand)*

FORL 4200. Secondary Methods--Foreign Languages. (3) Prerequisite: Completion of at least two 3000 level courses or equivalent in the target language, or permission of the Department. Current trends and practices in teaching foreign and second languages in the middle school and high school, with emphasis on practical applications. Addresses state-mandated competencies. Required for licensure in the teaching of foreign language and recommended for licensure in teaching English as a Second Language. (*Fall) (Evenings*)

FORL 4201. Foreign Languages in the Elementary School Methods. (3) Prerequisite: completion of at least two 3000 level courses or equivalent in the target language, or permission of the Department. Current trends and practices in
teaching foreign and second languages in the elementary school, with emphasis on practical applications. Addresses state-mandated competencies. Required for licensure in the teaching of a foreign language and recommended for licensure in teaching English as a Second Language. (*Spring) (Evenings*)

FORL 4800. Directed Individual Study. (1-3) Prerequisite: permission of the Department; normally open only to FL majors and minors. Individual work on a selected area of study. To be arranged with the instructor, generally during

the preceding semester, and by special permission only. May be repeated for credit. (*On demand*)

FRENCH (FREN)

FREN 1050. Special Approaches to the Study of French. (1-6) Course may be repeated with change of topic. (*On demand*)

FREN 1100. Elementary French I. (3) Prerequisite: may be taken for credit *only* by students with no previous experience in French. First course in a college-level sequence to develop competence in speaking, understanding, reading, and writing French, in a cultural context. *(Fall, Spring, Summer) (Evenings)*

FREN 1101. Elementary French II. (3) Prerequisite: FREN 1100 or equivalent. Second course in a college-level sequence to develop competence in speaking, understanding, reading and writing French, in a cultural context. The first course offered for students with previous experience in French. *(Fall, Spring, Summer) (Evenings)*

FREN 1102. Elementary French III. (3) Prerequisite: FREN 1101 or equivalent. Third course in a college-level sequence to develop competence in speaking, understanding, reading, and writing French, in a cultural context. *(Fall, Spring, Summer) (Evenings)*

All courses at the 2000 level (except for FREN 2209, which is taught in English) fulfill the language requirement of non-majors who must take three semesters of French.

FREN 2050. Topics in French I. (3) Course may be repeated with a change in topic. *(On demand)*

FREN 2201. Intermediate French I. (3) Prerequisite: FREN 1102 or equivalent. Review of grammar, with reinforcement and expansion of competence in speaking, understanding, reading, and writing, in a cultural context. *(Fall, Spring)*

FREN 2202. Intermediate French II. (3) Prerequisite: FREN 2201 or permission of the Department. Conversation and composition based on readings in French literature and culture. Film and slide presentations. (*Fall, Spring*)

FREN 2207. French Phonetics. (3) Prerequisite: FREN 1102 or permission of the Department. Study of the sounds of the French language, their production and representation by means of the International Phonetic Alphabet. Practice in reading and speaking with proper rhythm and intonation. (*Fall*)

FREN 2209. French Civilization. (3) (WX) Conducted in English. No knowledge of French required. Open to majors and non-majors for elective credit. A study of the French people, past and present, with emphasis on cross-cultural contrasts in attitudes and values. (*On demand*)

FREN 2210. Introduction to Business French. (3) Prerequisite: FREN 2201or permission of the Department. Introduction to spoken and written language of the French-speaking business world. Acquisition of and practice with general commercial terminology used in French for such functional business areas as economics, management, marketing finance, and import-export. (Alternate to FREN 2202 only for Certificate in Business French) *(Spring)*

FREN 3050. Topics in French. (1-3) Course may be repeated with change of topic. (*On demand*)

FREN 3201. French Grammar and Conversation. (3) (O) Prerequisite: FREN 2202 or permission of the Department. Review of French grammar and guided conversation on prepared topics. Emphasis on spoken French. (*Fall*)

FREN 3202. French Grammar and Composition. (3) Prerequisites: FREN 2202 and 2207 or concurrent enrollment in FREN 2207. FREN 3201 recommended. Review of French grammar and guided compositions on prepared topics. Emphasis on vocabulary, idiomatic expressions, and stylistics. (*Spring*)

FREN 3203. Introduction to French Literature. (3) Prerequisite: FREN 2207; corequisite: FREN 3202; or permission of the Department. Development of techniques for literary study through analysis of selected major works in French literature. Readings, discussions, presentations, and *explications de texte. (Spring)*

FREN 3209. France Today. (3) Prerequisite: FREN 3201 or permission of the Department. Contemporary France: institutions, society, culture. *(Fall)*

FREN 3800. Directed Individual Study. (1-3) Prerequisite: permission of the Department; normally open only to FL majors and minors. Individual work on a selected area of study. To be arranged with the instructor, generally during the preceding semester, and by special permission only. May be repeated for credit. (*On demand*)

FREN 4003. Studies in French Literature. (3) Prerequisite: FREN 3203, or permission of the Department. Course may be repeated with change of topic. (*On demand*)

FREN 4005. Studies in the French Language. (3) Prerequisites: FREN 3201 and 3202, or permission of the Department. Course may be repeated with change of topic. (*On demand*)

FREN 4007. Studies in French Culture and Civilization. (3) Prerequisites: FREN 3201, 3202, and 3209, or permission of the Department. Course may be repeated with change of topic. (*On demand*)

FREN 4050. Topics in French. (1-3) (3G) Prerequisites: Junior standing; English 1102 or equivalent if taught in English. May be taught in French or English. Will not count toward the major. Course may be repeated with change of topic. *(On demand)*

FREN 4120. Advanced Business French I. (3) Prerequisites: FREN 2210, 3201 and an additional 3000- or 4000-level course (3202 recommended), or permission of the Department. Advanced studies in Business French, with intensive practice in speaking, listening comprehension, reading, writing, and translation in functional business areas such as economics, management, and marketing. *(Fall)*

FREN 4121. Advanced Business French II. (3) Prerequisites: FREN 2210, 3201, and an additional 3000-or 4000 level course (3202 recommended), or permission of the Department. Advanced studies in Business French, with intensive practice in speaking , listening comprehension, reading, writing, and translation in functional business areas such as marketing, finance, and import-export. *(Spring)*

FREN 4201. Survey of French Literature I. (3) Prerequisite: FREN 3203. The major literary movements from the Middle Ages to the Enlightenment, with sample texts. Emphasis on continuity and change. (*Fall*)

FREN 4202. Survey of French Literature II. (3) Prerequisite: FREN 3203. The major literary movements from the Enlightenment to the contemporary period, with sample texts. Emphasis on continuity and change. (*Spring*)

FREN 4410. Professional Internship in French. (1-6) Prerequisites: FREN 3201 and 3202, or equivalent and consent of the Department. Faculty-supervised field and/or research experience in a cooperating profession (e.g., business) or community organization. Contents of internship based upon a contractual agreement among the student, department, and business or community organization. Offered on a *Pass/No Credit basis. (Fall, Spring, Summer)*

FREN 4800. Directed Individual Study. (1-3) Prerequisite: permission of the Department; normally open only to FL majors and minors. Individual work on a selected area of study. To be arranged with the instructor, generally during the preceding semester, and by special permission only. May be repeated for credit. (*On demand*)

GEOGRAPHY (GEOG)

GEOG 1101. World Regional Geography. (A) (V,X) A world regional study which emphasizes the distinctly human responses of people to various geographic situations throughout the world. The nature and development of cultural regions will be studied. (*Fall, Spring, Summer) (Evenings*)

GEOG 1105. The Location of Human Activity. (3) (C) An examination of factors which account for the locational characteristics of economic and other human activities. The locational decision-making process is examined as a means of understanding human spatial behavior. (*Fall, Spring, Summer*)

GEOG 2100. Maps and Graphs. (3) A study of cartography and its essential processes, with particular emphasis on the map as a communication system, the effective communication of data by means of graphical symbols, map interpretation and discussion of map production techniques. *(Fall, Spring) (Evenings*)

GEOG 2101. Cartographic Laboratory. (1) Prerequisite or corequisite: GEOG 2100. The laboratory emphasizes thematic mapping and design. This includes basic map construction techniques, including desktop mapping with computers. Two hours of laboratory per week. (*Fall, Spring) (Evenings*)

GEOG 2110. Introduction to Geographic Research. (3) Research design and resources in geographic research. Emphasis on spatial applications in summary statistics; spatial summaries, statistical hypothesis testing; sampling and estimation; association, correlation and regression. (*Fall, Spring) (Evenings*)

GEOG 2120. Geographic Information Systems: Survey of Applications and Techniques. (4) Covers the fundamentals of GIS technology and how it is being applied in such diverse fields as planning, marketing, criminal justice, political science, and engineering. Students will learn how to collect, organize, analyze, and display spatial data obtained from sources such as address geocoding, GPS, and WWW sites. Each student will complete a series of lab exercises that illustrate the typical steps in a GIS project. Three lecture hours, one two-hour lab per week. *(Fall, Spring)*

GEOG 2150. Geography of Polar Regions. (3) Arctic and Antarctic regions, history of exploration, the physical environment and political significance. (*Yearly*)

GEOG 2155. Geography of the U.S. and Canada. (3) Geographic structure of the U.S. and Canada with emphasis on physical environment and patterns of human activities. (*Fall*)

GEOG 2160. The South. (3) The culture, environment, population and economy of the southeastern U.S.; emphasis on current trends and future implications. (*Yearly*)

GEOG 2165. Patterns of World Urbanization. (3) (C,O) Introduction to cities of the world including examination of cities within different culture areas as well as the internal structure of different cities within the context of traditional and innovative theories of development geography. (*Fall, Spring, Summer*)

GEOG 2200. Introduction to Urban Studies. (3) A survey course exploring the diverse perspectives and experience of North American Cities. Lectures and discussions will focus on the development, organization, function, and meaning of urban areas, as well as the multiple and complex relationships that exist between cities and the people who live and work within them.

GEOG 3000. Topics in Regional Geography. (3) Examination of major geographical regions of the world. May be repeated for credit as topics vary. (*Yearly*)

GEOG 3100. The City and Its Region. (3) Study of the regional system of cities in terms of their size, spacing, historical evolution, functional relationships and future prospects. (*Fall, Spring*)

GEOG 3105. Geography of the Global Economy. (3) Examination of the globalization of economic activity with focus on the geographic patterns of international production, trade, and foreign direct investment and changes in these patterns resulting from actions by transnational corporations and nation states within a volatile technological environment. *(Spring)*

GEOG 3110. Urban Political Geography. (3) Spatial organization of metropolitan America. How metropolitan residents organize space into territorial units and the human, social and political ramifications of that organization. Spatial consequences of the most common modes of political, administrative and territorial organization. (*Alternate years*)

GEOG 3115. Urban Transportation Problems. (3) (W) Problems associated with moving goods, people and information in urban areas. Topics include mass transit and pollution problems. (*Alternate years*)

GEOG 3150. Manufacturing Geography. (3) Factors relating to the nature, locations and development of manufacturing industries. Emphasis upon classification of manufacturers, principal areas of manufacturing and the role of manufacturing in regional development. *(Spring) (Evenings)*

GEOG 3200. Land Use Planning. (3) Land use planning, with emphasis on basic planning processes, implementation techniques and strategies, and issues confronting contemporary urban and rural planning. (*Spring*)

GEOG 3205. Internal Structure of the City. (3) Integrative study of the spatial structure of cities with emphasis on land use patterns and models, transportation systems, residential concentrations, commercial activities and manufacturing zones. (*Fall, Spring, Summer*)

GEOG 3210. Regional Planning. (3) Introduction to regional planning strategies and approaches developed by regional planning agencies. Urban-regional planning relationships with emphasis on techniques used in regional analysis. (*Spring*)

GEOG 3215. Environmental Planning. (3) (W) Interaction and relationships between natural and human-made elements of the environment with emphasis on planning concepts and methodologies used in contemporary environmental planning. (*Fall*)

GEOG 3250. World Food Problems. (3) Magnitude, consequences, major causes and potential solutions to the world's food problems. (*On demand*)

GEOG 3260. Medical Geography. (3) Traditional aspects of medical geography including disease mapping, disease ecology and statistical association and more recent social scientific topics, including disease diffusion, health care facilities planning and spatial behavior. (*On demand*)

GEOG 3265. Behavioral Geography. (3) (V,W) Behavioral approach to environmental decision-making, personal space, room and building geography, consumer behavior, territoriality, perception of wilderness and natural hazards, activity space, and communication biases. (*Fall*)

GEOG 3500. Geography Cooperative Education Experience. (O) Enrollment in this course is required for the Department's geography cooperative education students during each semester that they are working. Evaluation is *Pass/No Credit. (Fall, Spring, Summer*)

GEOG 3501. Geography Cooperative Education Seminar. (1) This course is required of geography cooperative education students in each semester following a work assignment for presentation of geography reports on the co-op learning experience. (*Fall, Spring, Summer*)

GEOG 4000. Selected Topics in Geography. (3) Prerequisite: consent of instructor. An intensive study of topics in geography from such areas as urban, manufacturing, retailing activity, transportation, and political geography. Topics vary from semester to semester. May be repeated for credit as topics vary. (*Yearly*)

GEOG 4040. Transportation Topics. (3) Prerequisite: consent of Department. Investigation of special topics in transportation including: transit systems, mobility and travel patterns, land use/transportation interface, air pollution, and information systems. *(Spring) (Alternate years).*

GEOG 4101. Cartographic Techniques. (3) Prerequisite: GEOG 2100. Preparation of maps, figures and charts at a professional level of competence. Techniques to be emphasized include desktop mapping with computers, high resolution imagesetting output, color separation techniques which include computer separations as well as scribing and various related photographic processes. Two laboratories of three hours each per week. (*Spring*)

GEOG 4102. Cartographic Design and Map Construction. (3) Design process and basic map construction techniques with particular emphasis on the graphic elements of map design, planning map design, creating visual hierarchies, the uses of color, and basic mechanical color separation. (*Fall*)

GEOG 4103. Computer Mapping. (3) Prerequisites: GEOG 2100 and ITCS 1100 or 1201 and its lab, or consent of instructor. Automated methods of gathering, storing, manipulating and displaying spatial data. Emphasis on the use of existing software and the design and implementation of geographic data structures and algorithms. (*Spring*)

GEOG 4120. Introduction to Geographic Information Systems. (4) Prerequisite: consent of instructor. Development, current state-of-the-art and future trends in geographic information processing with emphasis on data gathering, storage, and retrieval, analytical capabilities and display technologies. A laboratory component will include development and completion of an applied GIS research project. Additional requirements for graduate credit. Three lecture hours, one two-hour lab per week. (*Fall*)

GEOG 4130. Advanced Geographic Information Systems. (4) Prerequisite: GEOG 4120 or consent of instructor. Advanced GIS study with emphasis on (1) advanced skills for database development and management; (2) spatial analysis and modeling; and (3) Macro language programming and user interface design. Three lecture hours and a two-hour lab session each week. *(Spring)*

GEOG 4155. Retail Location. (3) Spatial attributes of retailing and related activities. Location patterns, store location research, trade area delineation and consumer spatial behavior. (*Spring*)

GEOG 4160. The Geography of Transportation Systems. (3) Geographical and human factors that affect the movement of goods and people from place to place. Emphasis on transportation routes and networks, commodity flow patterns, and the locational implications of freight rates. (*Spring*)

GEOG 4210. Urban Planning Methods. (3) Prerequisite: GEOG 4205 or consent of instructor. Scope and methods of urban planning. Emphasis on analytical techniques, projections, and data sources used in developing comprehensive planning tasks and strategies. (*Fall*)

GEOG 4255. Applied Population Analysis. (3) Population data sources; measuring population change; elementary projection and estimation techniques; spatial sampling; migration; survey design; applications in the public and private sectors. (*Fall*)

GEOG 4260. Transportation Policy Formulation. (3) Prerequisite: consent of Department. Structure of transportation policy at federal, state, and local levels including policies concerning highway financing and investments, congestion, safety, and use and development, energy, transit, and the provision of inter-city services. *(Fall) (Alternate years)*

GEOG 4265. Transportation Analysis Methods. (3) Prerequisite: consent of Department; statistics recommended. Procedures for analyzing the operation and performance of transportation systems; includes network planning models, minimum path algorithms and assignments; energy, air pollution, and activity analysis models; and research approaches, data sources, time and activity budgets, infrastructure condition and needs assessment. *(Spring) (Alternate years)*

GEOG 4270. Evaluation of Transportation Impacts. (3) Prerequisite: consent of Department. Methods and case studies for evaluating impacts and benefits of transportation investments including site-level impact analysis; project, corridor, and area scales; multi-modal evaluation and examination of mutually exclusive alternatives. *(Fall) (Alternate years)*

GEOG 4400. Internship in Geography. (3-6) Prerequisite: consent of the Department. Research and/or work experience designed to be a logical extension of a student's academic program. The student must apply to Department for an internship by submitting a proposal which specifies the type of work/research experience preferred and how the internship will complement his or her academic program. The student can receive three to six hours credit depending on the nature and extent of the internship assignment. (*On demand*)

GEOG 4405. Urban Field Geography. (3) Prerequisite: six hours of urban-related undergraduate courses of permission of instructor. Intensive field studies of cities of the Carolinas, including one-day and overnight trips to cities of the mountains and coastal areas. Emphasis on day study trips within the Piedmont. Exercises include land-use mapping, trip journals, interviews and comparisons of the results of zoning and urban development practices within satellite cities of the Charlotte Metropolitan Statistical Area. *(Summer)*

GEOG 4800. Individual Study in Geography. (1-4) Permission of Department must be obtained and credit hours established in advance. Tutorial study or special research problems. May be repeated for credit. (*On demand*)

GEOLOGY (GEOL)

GEOL 1200. Physical Geology. (3) (S) A study of the basic geological principles and processes in earth science; the earth as a planet; treatment of physical processes shaping the earth; earth materials and landforms. (*Fall, Spring, Summer) (Evenings*)

GEOL 1200L. Physical Geology Laboratory. (1) (S) Prerequisite or corequisite: GEOL 1200. Experimental study and investigation of the basic geological principles and processes in earth science; minerals, rocks, earth materials, and landforms. One lab period of three hours per week. Off-campus field trip required. (*Fall, Spring, Summer) (Evenings*)

Although the laboratory and lecture sections of GEOL 1200 are taught as separate courses it is recommended that students take GEOL 1200L concurrently with GEOL 1200. Students with scheduling problems or students not fulfilling the UNC Charlotte science and technology requirements may take the lecture without the laboratory. Students fulfilling the UNC Charlotte science and technology requirement must either: (a) take GEOL 1200 and GEOL 1200L concurrently or (b) take GEOL 1200L in a semester subsequent to taking GEOL 1200.

GEOL 1210. Earth History. (3) (S) Prerequisites: GEOL 1200. The origin and evolution of the earth's major features: the beginnings and changes of the earth's continents, atmosphere, oceans, life forms, set in the vast context of geologic time. Three hours of lecture. (*Fall, Spring*)

GEOL 1210L. Earth History. (1) (S) Prerequisites: GEOL 1200, 1200L. Additional prerequisite or corequisite: GEOL 1210. Learn the basic techniques used by geologists to interpret the history of life, changing surface environments and habitats, plate tectonic movement, mountain building events, and climate changes. Hands-on investigation or rocks, fossils, geologic maps, and more. One lab period of three hours per week. Off campus field trip required. *(Fall, Spring)*

GEOL 2100. The Violent Earth. (3) Volcanoes, earthquakes, hurricanes, tornadoes, floods and other catastrophic natural phenomena with emphasis on causes, effects and human adjustments. (*Fall*)

GEOL 3000. Selected Topics in Geology. (1-4) Prerequisite: GEOL 1200-1200L, or permission of the instructor. Treatment of specific topics selected from one of the fields of geology. May be repeated for credit as topics vary. *(On demand)*

GEOL 3110. Minerals and Rocks. (3) Prerequisites or corequisites: GEOL 1200 and 1200L. Formation processes, composition and identification of rocks and minerals in the

earth's crust with important abundance or special use. *(On demand)*

GEOL 3115. Mineralogy. (4) Prerequisite: GEOL 1200. Prerequisite or corequisite: CHEM 1251-1251L or consent of the instructor. Identification, classification and description of minerals based on physical properties, crystallography, and chemical composition. Includes diagnostic techniques for identification of common ore and rock forming minerals. Three hours of lecture and one three-hour lab per week. (*Fall*)

GEOL 3120. Geochemistry. (3) Prerequisites: GEOL 1200, 1200L and Chemistry 1251 or consent of instructor. Geochemical survey of origin, evolution and present composition of the earth. *(Alternate years)*

GEOL 3120L. Geochemistry Laboratory. (1) Prerequisiteor corequisite: GEOL 3120 or consent of instructor. Analytical methods and sample preparation techniques used by geochemists. One three hour meeting per week. *(On demand)*

GEOL 3124. Sedimentology. (4) (W) Prerequisites: GEOL 1210, 3115 or consent of instructor. Examination of sedimentary rock features and compositions as related to origin, dispersion, deposition, diagenesis, classification and general distribution of sedimentary materials. Three hours of lecture and one three-hour lab per week. (*Fall*)

GEOL 3130. Structural Geology. (4) Prerequisite: GEOL 3115 or consent of the instructor. A systematic examination of the structures and processes of rock deformation. Three lecture hours, one three-hour lab per week. (*Fall*)

GEOL 3140. Paleontology. (3) Prerequisite: GEOL 1200, 1200L and 1210, or permission of the instructor. Nature of fossils, analysis of growth and variation in fossil assemblages, reconstruction of the modes of life of extinct organisms, paleobiogeography, biostratigraphy, and the fossil record of evolutionary pattern and processes. *(On demand)*

GEOL 3190. Environmental Geology. (3) Prerequisites: GEOL 1200, 1200L. Aspects of geology with direct or indirect impact on society. Topics include slope stability, earthquake hazards, solid waste disposal, flooding, ground water problems, soil loss, sediment pollution, watershed dynamics, water and soil pollution, and radioactive waste disposal. (*Spring*)

GEOL 3190L. Environmental Geology Laboratory. (1) Prerequisite or corequisite: GEOL 3190. Investigation of the causes, consequences, and mitigation of natural hazards and disasters. One three-hour lab per week. (*On demand*)

GEOL 4000. Selected Topics in Geology. (1-4) Prerequisites: ESCI 1101, GEOL 1200-1200L, or permission of the instructor. In-depth treatment of specific topics selected from one of the fields of geology. May be repeated for credit as topics vary. *(On demand)*

GEOL 4100. Igneous and Metamorphic Petrology. (4) Prerequisite: GEOL 3115. Classification, mineralogy and chemical properties of igneous and metamorphic rocks including the tectonic processes by which they formed. Lab emphasizes hand specimen and petrographic description and interpretation of rocks in thin sections. (*Alternate years*)

GEOL 4105. Geomorphology. (3) Prerequisites: ESCI 1101; GEOL and 1200L. Surficial processes and landform development as controlled by climate, tectonics, rock characteristics and time with emphasis on plate tectonic, weathering, erosion, mass wasting, surface water, groundwater, glacial, wind and coastal processes and climate change in landscape development. *(Fall)(Alternate years)*

GEOL 4105L. Gemorphology Laboratory. (1) Prerequisite or corequisite: GEOL 4105. Analysis of landforms and the surficial processes responsible for landform development. One lab period of 3 hours per week. *(Fall)(On demand)*

GEOL 4110. Stratigraphy. (4) Prerequisites: GEOL 1210 and 3124. Vertical and horizontal relationships of layered earth materials as a key to understanding basin history, past depositional environments, and their transformation through time. Three lecture hours, three lab hours per week. (*Spring)*

GEOL 4115. Applied Geophysics. (4) Prerequisites: GEOL 3115, 3130 and introductory physics or consent of instructor. Instrumental analysis of the earth's physical parameters. Study of human-induced seismic and electrical signals, and natural magnetic and gravitational fields for the purposes of locating faults, ore bodies, ground water, and other earth hazards or resources. Three hours of lecture and one two-hour lab per week. (*On demand*)

GEOL 4120. Geologic Mapping and Interpretation. (4) Prerequisites: GEOL 3130 and 4100 or consent of instructor. Field and lab oriented study using principles of mineralogy, petrology and structural geology. Involves collection and resolution of field data, techniques of presenting data, development of geologic maps, and critical reviews of existing literature. Two hours of lecture, four hours of lab/field work per week. (*Alternate years*)

GEOL 4125. Geologic Summer Field Camp. (6) Prerequisite: junior standing and consent of instructor. Concentrated field investigation of geologic features. Data collection in the field, geologic mapping, report and map preparation and time management. Location of field camp will be specified each time course is offered. (*Summer*)

GEOL 4130. Optical Mineralogy. (4) Prerequisite: GEOL 3115. Light optics theory, the behavior of plane polarized light in a solid medium. The laboratory emphasizes the use of petrographic microscope oil immersion techniques and identification of the common rock forming minerals. Three hours of lecture and one three-hour lab per week. (*Spring*)

GEOL 4135. Tectonics. (4) Prerequisite: GEOL 3130 or consent of the instructor. A systematic examination of the evolution and dynamics of the earth from the perspective of plate tectonics theory. Three lecture hours, and one three-hour lab per week. (*Alternate years*)

GEOL 4145. Fundamentals of Hydrogeology. (3) Prerequisites: GEOL 1200, CHEM 1252 or consent of instructor. Physical and chemical principles of ground water including the framework of ground water within the geologic

and hydrologic cycles, its exploitation and protection as a natural resource, and its importance as a resource in the southeastern United States. *(On demand) (Evenings)*

GEOL 4145L. Hydrogeology Laboratory. (1) Prerequisites: GEOL 1200, CHEM 1252, MATH 1242, PHYS 1101 and GEOL 4145 (or corequisite) or consent of instructor. Ground water investigation and analysis. Topics include storage of water in rocks, movement and chemical evolution of ground water, and assessment of regional ground water conditions. One three-hour lab per week. *(On demand) (Evenings)*

GEOL 4165. Aqueous Geochemistry. (4) Prerequisite: Prerequisites: CHEM 1251 and 1252 and GEOL 3115, or consent of instructor. Interaction of rocks, minerals, and gases with water under natural conditions, including an overview of the compositions of natural waters from a variety of environmental and geologic settings emphasizing a rigorous thermodynamic approach to understanding water-rock interactions. Three hours of lecture, and three hours of lab per week. *(Fall)*

GEOL 4400. Internship in Geology. (3-6) Prerequisite: consent of the Department. Research and/or work experience designed to be a logical extension of a student's academic program. The student must apply to the Department for an internship by submitting a proposal which specifies the type of work/research experience preferred and how the internship will complement his or her academic program. The student can receive three to six hours credit depending on the nature and extent of the internship assignment. *(On demand)*

GEOL 4800. Individual Study in Geology. (1-4) Prerequisite: Permission of the Department and credit hours established in advance. Tutorial study or special research problems. May be repeated for credit as topics vary. *(On demand)*

GERMAN (GERM)

GERM 1100. Elementary German I. (3) Prerequisite: may be taken for credit *only* by students with no previous experience in German. First course in a college-level sequence to develop competence in speaking, understanding, reading, and writing German, in a cultural context. *(Fall, Spring, Summer) (Evenings)*

GERM 1101. Elementary German II. (3) Prerequisite: GERM 1100 or equivalent. Second course in a college-level sequence to develop competence in speaking, understanding, reading and writing German, in a cultural context. The first course offered for students with previous experience in German. *(Fall, Spring, Summer) (Evenings)*

GERM 1102. Elementary German III. (3) Prerequisite: GERM 1101 or equivalent. Third course in a college-level sequence to develop competence in speaking, understanding, reading, and writing German, in a cultural context. *(Fall, Spring, Summer) (Evenings)*

GERM 2201. Intermediate German I. (3) Prerequisite: GERM 1102 or equivalent. Review of grammar, reinforcement and expansion of competence in speaking, understanding, reading, and writing, in a cultural context. *(Fall, Spring)*

GERM 2202. Intermediate German II. (3) Prerequisite: GERM 1102 or permission of the Department. Review of grammar, composition and conversation, based upon readings on the culture and civilization of German-speaking countries. Students who wish to continue with advanced offerings in German are advised to complete GERM 2202. (*Fall, Spring*)

GERM 2210. Introduction to Business German. (3) Prerequisites: GERM 2201 or permission of the Department. Introduction to spoken and written language of the German-speaking business world. Acquisition of and practice with general commercial terminology used in German for such functional business areas as economics, management, marketing, finance, and import-export. (Alternate for GERM 2202.) *(Fall)*

GERM 3030. Studies in German Culture. (3) (A) Prerequisite for German major: satisfactory completion of GERM 2202 or equivalent. Conducted in English. No knowledge of German required. A study of the life and thought of German-speaking people both past and present. Course topic will concentrate on a geographical area, a particular cultural institution or a particular period. May be repeated as topic changes. (*Alternate years*)

GERM 3050. Studies in German Literature. (L) (3) Prerequisite for German major: satisfactory completion of GERM 2202 or equivalent. Conducted in English. No knowledge of German required. May be repeated as topic changes. (*Yearly*)

GERM 3160. Survey of German Film. (3) (WAO) or (WXO) Prerequisite: sophomore status and ENGL 1102. Introduction to major movements in German film history. Conducted in English. Lectures, group discussions, viewing of films (in whole and in part), and a variety of writing assignments. For students seeking to apply this course toward requirements for the German major or minor there is a prerequisite of four semesters of German or the equivalent and a co-requisite of GERM 4050 [1] *(On demand)*

GERM 3201. Advanced German Grammar, Composition and Conversation I. (3) (O) Prerequisite: GERM 2202 or permission of the Department. For prospective teachers of German and students who want intensive oral and written work in the language. Three class hours per week and lab work as assigned by instructor. (*Yearly*)

GERM 3202. Advanced German Grammar and Composition II. (3) Prerequisite: GERM 2202 or permission of the Department. Intensive review of German grammar. Discussion of prepared topics drawn from newspapers and periodicals. Three class hours per week and laboratory work as assigned by instructor. (*Yearly*)

GERM 3800. Directed Individual Study. (1-3) Prerequisite: permission of the Department; normally open only to German majors and minors. Individual work on a selected area of study. To be arranged with the instructor,

generally during the preceding semester, and by special permission only. May be repeated for credit. (*On demand*)

GERM 4010. Periods in the History of German Literature. (3) (a) Medieval literature, (b) Classicism, (c) Romanticism, (d) Nineteenth Century, (e) Contemporary literature. Prerequisites: two 3000 level courses or permission of the Department. Study of the major writers and works in a given period. Readings, lectures, and reports. May be repeated for major credit with change of topic. (*Alternate years*)

GERM 4020. The Chief Genres in German Literature. (3) (a) Novel, (b) Theater, (c) Lyric poetry, (d) short prose fiction. Prerequisites: two 3000 level courses or permission of the Department. An analysis of a major genre and its development within German literary history. Readings, lectures and reports. May be repeated for major credit with change of topic. (*Alternate years*)

GERM 4050. Special Topics in German. (1-3) Prerequisite: one 3000 level course or permission of the instructor. Treatment of a special group or figure in German literature, specialized topic in German culture or language, or special problems in German conversation. May be repeated for credit with change of topic. (*Fall, Spring, Summer*)

GERM 4120. Advanced Business German I. (3) Prerequisites: GERM 2210, 3201 and an additional 3000- or 4000-level course (3202 recommended), or permission of the Department. Advanced studies in Business German, intensive practice in speaking, listening comprehension, reading, writing, and translation in functional business areas such as economics, management, and marketing. *(Fall)*

GERM 4121. Advanced Business German II. (3) Prerequisite: GERM 2210, 3201 and an additional 3000- or 4000 level course (3202 recommended), or permission of the Department. Advanced studies in Business German, intensive practice in speaking, listening comprehension, reading, writing, and translation in functional business areas such as marketing, finance, and import-export. *(Spring)*

GERM 4203. Survey of German Literature I. (3) Prerequisites: two 3000 level courses or permission of the Department. General introduction to German literature from the Middle Ages to the Classical Period. Book reports and class discussion on collateral readings. (*On demand*)

GERM 4204. Survey of German Literature II. (3) Prerequisite: two 3000 level courses or permission of the Department. German literature since Classicism. Book reports and discussions on collateral readings. (*On demand*)

GERM 4410. Professional Internship in German. (1-6) Prerequisites: GERM 3201 and 3202, or equivalent and consent of the Department. Faculty-supervised field and/or research experience in a cooperating profession (e.g., business) or community organization. Contents of internship based upon a contractual agreement among the student, department, and business or community organization. *(Fall, Spring, Summer)*

GERM 4800. Directed Individual Study. (1-3) Prerequisite: permission of the Department; normally open only to FL majors and minors. Individual work on a selected area study. To be arranged with the instructor, generally during the preceding semester, and by special permission only. May be repeated for credit. (*On demand*)

GREEK (GREK)

GREK 1201. Elementary Ancient Greek I. (4) Beginning survey of elementary Ancient Greek grammar through selected readings. *(Alternate years)*

GREK 1202. Elementary Ancient Greek II. (4) Prerequisites: GREK 1201 or equivalent. Completion of the survey of elementary Ancient Greek grammar; connected readings in elementary to intermediate Biblical and Attic prose. *(Alternate years)*

GREK 3800. Directed Individual Reading. (1-3) Prerequisite: permission of instructor. Individual work on an author or genre to be arranged with the instructor. *(On demand)*

GERONTOLOGY (GRNT)

GRNT 2100. Introduction to Gerontology. (3) (C) An interdisciplinary course that examines the phenomenon of aging and its consequences for society from a variety of perspectives. Students participate in lectures, discussions and meetings with community-based professionals designed to give them a broad overview of the field of gerontology. Emphasis on the wide variation in the aging process and the significant programs and services designed to meet the needs of the aging population. (*Fall, Spring*)

GRNT 2124. Psychology of Adult Development and Aging. (3) (C) Psychological development through adulthood and old age. Emphasis on processes underlying continuity and change in adulthood, including personality and socialization, cognitive development and the psychophysiology of aging. (Same as PSYC 2124) *(Spring)*

GRNT 3115. Health and the Aging Process. (3) Examination of the physiologic processes of aging as a normal life experience. Study of psychological, nutritional and general health issues designed to facilitate high-level wellness. *(Same as NURS 3115)*(*Spring*)

GRNT 3600. Senior Seminar and Field Experience in Aging. (3) (W) prerequisites: completion of at least 9 hours in gerontology curriculum including GRNT 2100, and two primary electives (selected from GRNT 3115, 2124, 4110, and 4250). Capstone course for the minor in Gerontology designed to help students apply theories, research methods, and specific intervention strategies to substantive issues, and critically examine the organizational structure of aging programs and policies. Two seminar hours and six field placement hours per week. *(Spring)*

GRNT 3800. Independent Study in Gerontology. (1-8) Prerequisite: Permission of the instructor and the gerontology undergraduate coordinator. Supervised individual study and/or field-based experience in a topic or area of Gerontology of particular interest to the student.

May be repeated for credit but only a total of 3 credits can be counted toward a Gerontology minor. *(On demand)*

GRNT 4050. Topics in Gerontology. (1-4) Investigation of specific issues in Gerontology, either from the perspective of a single discipline or from a multidisciplinary perspective. May be repeated for credit as topics vary. A total of 3 credits can be counted toward minor. *(On demand)*

GRNT 4110. Sociology of Aging. (3) Prerequisite: SOCY 1101 or consent of the instructor. Changing characteristics, aspirations and needs of older adults and their impact upon such institutions as the family, work, the economy, politics, education and health care; emphasis on sociological theories of aging, contemporary research, and the analysis of specific aging policies and programs. (Same as SOCY 4110) *(Fall, Summer)*

GRNT 4250. Aging Programs and Services. (3) Examination of federal, state and local framework of services and programs for the aging. *(On demand)*

GRNT 4260. Women: Middle Age and Beyond. (3) Position of older women in society and the particular problems of and issues for women as they age. (The same as WMST 4260.) *(On demand)*

GRNT 4270. Intergenerational Relationships & Programs. (3) Exploration of the importance and consequences of intergenerational relationships and the range of programming currently available to encourage interaction between people of different ages. *(On demand)*

HISTORY (HIST)

HIST 1000. Topics in History. (3) Treatment of a historical topic at an introductory level. May be repeated for credit as topics vary. *(On Demand)*

HIST 1100. The World in the 20th Century. (3) (VX) Outstanding recent world developments in an historical context. *(Fall, Spring, Summer)(Evenings)*

HIST 1115. The Ancient Mediterranean World. (3) (A or X) Survey of the ancient history of the Near East, Egypt, Greece, and Rome from c. 3000 B.C. to the 5th c. A.D. emphasizing historical information drawn from art and material culture. *(Fall, Spring)*

HIST 1120. European History to 1660. (3) (X) Political and cultural developments of Western Europe from the fourth century A.D. to the Age of Absolutism. *(Fall, Spring, Summer)*

HIST 1121. European History Since 1660. (3) (X) European history from the Age of Absolutism to the present. *(Fall, Spring, Summer) (Evenings)*

HIST 1140. Latin American Civilization. (3) (X) This course provides a historical introduction to Latin American society, politics, economics, and culture, with an emphasis on the historical roots of recent events and issues. *(Fall, Spring)*

HIST 1160. U.S. History I. (3) (C) American history from the earliest times to 1865. *(Fall, Spring, Summer)(Evenings)*

HIST 1161. U. S. History II. (C or L) American history from 1865 to the present. *(Fall, Spring, Summer) (Evenings)*

HIST 2000. Topics in History. (3) (V) Treatment of an historical topic. May be repeated for credit as topics vary. *(Yearly)*

HIST 2100. Introduction to Historical Studies. (3) (O) An introduction to the skills needed for historical research and communication. Includes experience with primary and secondary sources, library research, historical evidence, and citation. Special emphasis is placed on the delivery of a coherent, analytical argument in both written and oral formats. Majors only. *(Fall, Spring, Summer) (Evenings)*

HIST 2101. American Business History. (3) A survey of the origins, methods, and goals of modern business enterprise. Lectures emphasize the social history of the American business community and the relation between public policy and economic growth. Discussion emphasizes current economic problems and policies. *(On demand)*

HIST 2110. Technology and Science in Society I: To 1776. (3) The history of science and technology up to the British industrial revolution of the 18th century. The impact of scientific and technological change on Western societies and societal influence on the development of science and technology. Scientific and technical background is not a prerequisite. *(Fall)*

HIST 2111. Technology and Science in Society II: Since 1776. (3) (VC) The history of science and technology in Western society since the industrial revolution of the 18th century. The inter-connections of science and technology with society, with particular emphasis on the United States. Designed for all students, regardless of scientific and technical background. *(Spring)*

HIST 2120. American Military History. (3) A survey of the development and organization of military practice from the colonial period to the present. *(Spring)*

HIST 2130. Introduction to Historic Preservation. (3) Techniques available in the United States to identify and preserve historically significant structures, buildings, sites, areas and objects. *(Fall)*

HIST 2140. Disease and Medicine in History. (3) Development of medical knowledge, trends in the techniques and availability of medical and psychiatric care, impact of disease and medicine, on selected problems in world history. *(On Demand)*

HIST 2150. U. S. Women's History to 1877. (3) (V) A survey of women's experience in the U. S. from colonization through the civil war and reconstruction. Special emphasis on the evolution of women's public roles and the impact of class, race, and region in shaping women's lives. Same as WMST 2150. *(Alternate Years)*

HIST 2151. U.S. Women's History since 1877. (3) (V) A survey of women's experience in the U.S. from reconstruction to the present. Special emphasis on work, family, and feminism, and the impact of class, race, and region in shaping women's lives. Same as WMST 2251. *(Alternate years)*

HIST 2152. European Women's History. (3) An exploration of women's experiences in western Europe and Russia, covering topics of religion, work, family, and politics. Same as WMST 2252. *(Alternate years)*

HIST 2200. Asian Civilization. (3) (L) An investigation of the philosophical, religious, social, political and economic foundations of the great Asian civilizations. Emphasis will be placed on understanding those traditions that influence Asian societies today and a comparison of those traditions to Western traditions. (*Fall*)

HIST 2201. History of Modern Asia. (3) Focus on the rise of modern Asia from the period just prior to the armed intervention of Western European nations. Emphasis will be placed on the impact of imperialism, colonialism, and the rise of Asian nationalism on Asian societies. Same as INTL 2201. (*Spring*)

HIST 2206. Colonial Latin America. (3) (X) A survey of major political, economic, and cultural developments from earliest times to 1826. *(Yearly)*

HIST 2207. Modern Latin America. (3) (X) A survey of Latin American history from 1826 to the present with emphasis on the economy and society. Special attention to twentieth-century revolutions and the role of the United States in Latin America. Same as INTL 2401. (*Fall*)

HIST 2210. Pre-Colonial Africa. (3) (X) A survey of major political, economic and religious developments in Sub-Saharan Africa from earliest times to the early 19th century. (*Fall*)

HIST 2211. Modern Africa. (3) (X) A survey of major developments in 19th and 20th century Sub-Saharan Africa, with emphasis on the European conquest, the colonial period, and the triumph of modern African nationalism. Same as INTL 2101. (*Spring*)

HIST 2250. Russian History from Earliest Times to 1801. (3) Development of the Russian people, focusing upon the rise and fall of the Kievan state, the impact of the period of Tartar domination, the rise of Moscovy, and the growth of the Tsarist autocracy before the reign of Alexander I. (*Alternate years*)

HIST 2251. Russian History from 1801 to 1917. (3) Decline and fall of the Tsarist empire, focusing upon the efforts of the last four rulers to perpetuate the monarchy and upon the factors working against the effort. (*Alternate years*)

HIST 2252. Russian History from 1917 to the Present. (3) Development of Soviet Russia, focusing upon the October 1917 Revolution, Lenin's years of rule, Stalin's rise to power, the Five Year Plan and the years since World War II. (*Alternate years*)

HIST 2260. Britain to 1688. (3) (C) British history with emphasis on institutional, cultural, and economic developments. (*Alternate years*)

HIST 2261. Britain since 1688. (3) Continuation of HIST 2260 with some treatment of the British Empire. (*Alternate years*)

HIST 2270. France, 1643-1815. (3) A survey from the development of royal absolutism to the French Revolution and Napoleonic conquests. (*Alternate years*)

HIST 2271. France, 1815 to the Present. (3) A study of France through the period of the Paris Commune, the two World Wars, and the current crisis of the modern world. (*Alternate years*)

HIST 2280. The Emergence of Modern Germany. (3) A political survey to the mid-19th century, emphasizing the dual role of Prussia and Austria in the German world. (Alternate years)

HIST 2281. Twentieth Century Germany. (3) The Wilhelmine Empire, the Wiemar Republic, the Third Reich and the two Germanies. (*Alternate years*)

HIST 2284. A Military History of World War II. (3) Major campaigns of World War II with emphasis upon the European theater of operations. (*Alternate years)*

HIST 2285. World War II: The Pacific Theater. (3) A description and analytical survey of the military campaigns in the Pacific theater of operations. (*Alternate years)*

HIST 2297. History of North Carolina, 1500 to the Present. (3) An overview of North Carolina's historical development focusing on the social, economic, and political events that have shaped the state (*Fall, Spring*)

HIST 2400. History Internship. (1-3) Applied historical techniques utilizing modern methodology and experiences in off-campus institutions or on historical sites. May be repeated for credit. (*On demand*)

HIST 2700. Honors in History. (3) Prerequisite: consent of instructor. Treatment of historical topic. May be repeated for credit as topics vary. (*On demand*)

HIST 3000. Topics in History. (3) Treatment of historical topic. May be repeated for credit as topics vary. (*Yearly*)

HIST 3010. History and Culture through Film. (3) An examination of twentieth-century historical themes in cultural context through films and scholarly monographs. May be repeated as topics vary. *(Fall)*

HIST 3101. History of Greece. (3) (L) From the beginning of civilization in Greece to the 1st Century B.C. (*Alternate years*)

HIST 3102. History of Rome. (3) (L or A) From the beginning of civilization in Italy to the 5th Century A.D. (*Alternate years*)

HIST 3106. Medieval Europe (3) (L or A) Europe from the decline of the Roman Empire (ca. 300 A.D.) to 1450. Major topics include: the spread of Christianity, the Frankish Monarchy, the Crusades, the revival of towns, the growth of centralized monarchies, and the Black Death and its consequences. *(Alternate years)*

HIST 3109. Renaissance and Reformation Europe. (3) (A or X) European history in the era of Renaissance and Reformation, 1400 to 1650, with special attention to art and comparative analysis. *(Alternate Years)*

HIST 3110. The European World in the Era of the French Revolution. (3) The role of the Enlightenment, the French Revolution and Napoleon in the destruction of the Old Regime and the creation of modern political and social traditions. (*Alternate years*)

HIST 3115. Nineteenth Century Europe, 1814-1914. (3) Political developments in European history from the Congress of Vienna: liberalism, nationalism, imperialism and the diplomacy leading to World War I. (*Alternate years*)

HIST 3116. Twentieth Century Europe, 1914 to the Present. (3) Causes and results of World War I, rise of new governments, collapse of collective security, World War II and the postwar period. Same as INTL 2301. (Fall)

HIST 3130. History of Socialism and Communism. (3) Socialism before the establishment of the First International, followed by analysis of the socialist and communist movements until the present. (*Alternate years*)

HIST 3131. History of Sexuality. (3) An exploration of the roots of our modern attitudes toward sexuality beginning with ancient Greece and Rome, Judaism, and Christianity. Examination of changing attitudes and practices from the Enlightenment to the Victorians. Discussion of marriage, fertility control, abortion, prostitution, and homosexuality. Same as WMST 3231. *(Alternate years)*

HIST 3134. European Intellectual History Since 1789. (3) Leading thinkers in the development of philosophic, scientific and political thought. (*Alternate years*)

HIST 3140. Irish History. (3) History of Ireland from prehistory to the present. Course examines the roots of Ireland's present conflicts in the long history of the English-Irish interaction. *(Alternate years)*

HIST 3141. World War I. (3) World War I from the outbreak of hostilities to the peace settlement. Impact on the combatant nations and subsequent development of the World. (*Yearly*)

HIST 3147. The Third Reich. (3) The origins of Nazism, the seizure of power, Hitler's domestic and foreign policy, and the collapse in World War II. (*Alternate years)*

HIST 3148. The Holocaust. (3) (C, X) Study of the roots, conception, evolution and execution of the Holocaust, and its impact on culture and society. This course uses primary sources and eyewitness accounts to examine the Shoah from the perspectives of the perpetrator, rescuer, and bystander. *(Yearly)*

HIST 3150. Shakespeare's England. (3) (W, L) England during the century surrounding the life of William Shakespeare using literature from the period as a window through which to explore issues of political, religious, economic, and social change. *(Alternate Years)*

HIST 3160. History of Modern China. (3) China from 1600 to the present covering the founding of the last imperial dynasty, the arrival of the West, and China's struggle for unity in the twentieth century. (*Alternate years*)

HIST 3162. Revolutionary Movements in Modern China. (3) Examination of popular uprisings in nineteenth-century China and their relationship to China's twentieth-century revolutionary experience. (*Alternate years*)

HIST 3165. History of Modern Japan. (3) Japan from about 1600 to the present covering Japan's intellectual, social and economic transformation from an agricultural society to an industrial power. (*Alternate years*)

HIST 3168. Women and the Family in Modern East Asia. (3) Examination of women's contributions to China and Japan and the impact of two hundred years of radical social change of women's status with emphasis on the role of women in intellectual, labor, and revolutionary movements in the twentieth century. (*Alternate years*)

HIST 3170. Vietnam: A Century of Conflict. (3) Rise of Vietnamese nationalism under French rule and its growth into full-scale civil war in the years following World War II. Transition from French to American involvement in Vietnam and the consequences of that involvement for Southeast Asia, East-West relations, and U.S. politics. *(Alternate years)*

HIST 3174. Resistance and Adaptation: Indian Peoples Under Spanish Rule. (3) A historical survey of the interactions of indigenous peoples of the western hemisphere with Spanish colonial authorities from the conquest era to 1825. The course focuses on the indigenous peoples of Mexico, Peru, Chile, and Argentina. *(Alternate years)*

HIST 3175. Reform, Riots, and Rebellions in Colonial Spanish America, 1692-1825. (3) This course examines the economic, political, and cultural origins of violent conflict in colonial Latin America, culminating with an analysis of the revolutions for independence. *(Alternate years)*

HIST 3176. History of Mexico. (3) A survey of Mexican history from pre-Columbian times to the present. Special emphasis will be given to the Spanish conquest, the colonial economy, the independence period, the revolution, and relations with the United States. (*Alternate years*)

HIST 3177. The Cuban Revolution. (3) An examination of the economic and political forces that led to the Cuban revolution. Significant background material from the 19th and early 20th centuries will be presented in addition to an analysis of the revolution and post-revolutionary events. (*Alternate years*)

HIST 3178. History of Brazil. (3) A study of Brazilian history since 1500, with an emphasis on social and economic history. The course emphasizes slavery and race relations, the emergence of export economics, rural protest

movements, the effects of urbanization and industrialization, and the rise and fall of the military dictatorship. *(Alternate years)*

HIST 3201. Colonial America. (3) (L) Colonial history from the discoveries to 1763. *(Fall)*

HIST 3202. The American Revolution and Early Nation. (3) The achievement of independence and the formation of a national government, 1763-1800. *(Spring)*

HIST 3203. The Antebellum U.S., 1800-1860. (3) Political and social changes accompanying rapid economic transformation between 1800 and 1860. Emphasis on the sectional tensions between North and South. *(Alternate years)*

HIST 3211. Civil War and Reconstruction, 1860-1877. (3) The American people in war and the postwar adjustment. Emphasis on the political, social and economic conditions of the North and South during the Civil War and Reconstruction period. *(Alternate years)*

HIST 3212. History of the South to 1865. (3) The South from colonial origins through the Civil War. Emphasis on the political and cultural developments which ultimately led the South to secession and the creation of a distinct Southern nation in the Confederacy. *(Yearly)*

HIST 3213. History of the South since 1865. (3) Southern history from Reconstruction to the present. Emphasis on race and class relations as the South copes with change. Special attention to the Civil Rights Movement, industrialization and urbanization. *(Yearly)*

HIST 3214. The Urban South. (3) Development of the Southern city from the colonial period to the present with emphasis on the agricultural base of urban life, the biracial character, and early economic dependence upon the North. *(Alternate years)*

HIST 3215. Southerners. (3) (W) Prerequisites: ENGL 1101 and 1102. A writing-intensive course that explores the distinctive characteristics of Southerners through study of biographies and autobiographies. The varied backgrounds of Southerners and selected Americans from other regions will be studied. *(Alternate years)*

HIST 3216. American Medical History. (3) (C) History of American medicine and the relationship between medical thought and changing cultural beliefs. *(Fall)*

HIST 3241. United States Social History to 1860. (3) (C) (W) Ideas, groups and institutions that shaped early America, with emphasis upon the changes in family, religion, community, and class. *(Alternate years)*

HIST 3242. United States Social History since 1860. (3) (W) Ideas, groups and institutions that evolved from the Civil War to the present, with emphasis upon the formation of modern-day American society. *(Alternate years)*

HIST 3252. United States in the 20th Century, 1932-Present. (3) Political, economic, social and intellectual aspects of American democracy from the New Deal to the Great Society. Special emphasis on the New Deal and post-New Deal reform as well as America's role in world affairs. *(Spring)*

HIST 3256. United States Foreign Relations, 1901 to the Present. (3) American diplomatic history from the administration of Theodore Roosevelt to the present. Special emphasis on the interaction between domestic, economic, political and social changes, and the formulation of American foreign policy. *(Alternate years)*

HIST 3260. The United States and Latin America. (3) An examination of the complex relationship between the United States and Latin America in the nineteenth and twentieth centuries. Topics include U.S. territorial and economic expansion, cultural imperialism, and Latin American efforts to safeguard national sovereignty and to achieve economic development. *(Alternate years)*

HIST 3281. American Cities. (3) U.S. urban history. The city as a physical place, as a socio-political environment and as a cultural center. Emphasis on the social developments caused by urbanization. *(Alternate years)*

HIST 3284. Crime and the Police. (3) Historical development of criminal behavior, criminal law, the criminal courts, the police, and the penitentiary system. *(Alternate years)*

HIST 3288. The Frontier in United States History. (3) Influence of the frontier on the historical development of the U.S. Emphasis on the trans-Mississippi Western United States. *(Alternate years)*

HIST 3700. Honors in History. (3) (W) Prerequisite: consent of instructor. Treatment of historical topic. May be repeated for credit as topics vary. Required for Davenport Scholars. *(Yearly)*

HIST 3799. Senior Honors Thesis. (3) Prerequisite: consent of the instructor. The preparation and presentation of an acceptable Honors thesis or its equivalent. *(On demand)*

HIST 3800. Independent Projects in History. (3) Prerequisite: consent of instructor. Individual research or readings on an historical topic. May be repeated for credit with consent of the coordinator or instructor. *(On demand)*

HIST 4000. Problems in American History. (3) (W) Prerequisite: HIST 2100 or permission of the Department. A colloquium designed around a problem in American history, requiring reading, discussion, reports, and a major paper. May be repeated for credit as topics vary. *(Fall, Spring) (Evenings)*

HIST 4001. Problems in European History. (3) (W) Prerequisites: HIST 2100 or permission of the Department. A colloquium designed around a problem in European history, requiring reading, discussion, reports, and a major paper. May be repeated for credit as topics vary. *(Yearly, Summer) (Evenings)*

HIST 4002. Problems in Non-Western History. (3) (W) Prerequisite: HIST 2100 or permission of the Department. A colloquium designed around a problem in non-Western

history, requiring reading, discussion, reports, and a major paper. May be repeated for credit as topics vary. *(Yearly)*

HIST 4300/5300. Introduction to Public History. (3) This course will provide an overview of the main subfields in the field of Public History. Students will learn the fundamentals of Museum Studies, Historic Preservation, and other fields at the discretion of the instructor. This course is the first in a sequence of required courses for graduate students doing the Public History concentration; it is also open to advanced undergraduates with the consent of the Department. *(Yearly)*

UNIVERSITY HONORS (HONR)

All courses require permission of the Honors Program

HONR 1701. War, Peace, Justice and Human Survival. (3) (L) The relationships between individual and local, state and global values are examined within the context of war, peace and justice. Special emphasis is placed upon problems emergent with the introduction of nuclear weapons and the threat of nuclear war. *(Fall, Spring)*

HONR 1702. Economic Welfare and International Communities. (3) (W,X) Study of the impact of economic institutions on international communities. Focus on development theories, multinational institutions, international debt and Third World response, international poverty and income distribution and the economic impact on international communities of military spending. *(Fall, Spring)*

HONR 2701. Enrichment Seminar. (2) (A) Students attend a variety of events from the visual arts and performing arts as well as special lectures. Through direct contact, this course is intended to introduce students to events, both contemporary and traditional, which they would not otherwise be exposed to. Short written reports and class discussion required. *(Fall, Spring)*

HONR 2750. Community Service Laboratory. (1) This laboratory experience complements the classroom learning associated with the four course University Honor sequence, Issues for the 21st Century. Its purpose is to investigate and demonstrate of how individuals can make a difference in the human condition. Students enrolled attend weekly seminar meetings. Relationships between the volunteer individual and community agencies served are examined within the context of problem-solving strategies and social/political justice. Emphasis is upon problems emergent with the interaction between volunteers and low income, less fortunate, under-educated populations involved. Impact of volunteerism upon human rights will be explored. Class discussion required. *(Fall, Spring)*

HONR 3700. University Honors Topics. (3) (W) (Variable General Education credits) A small discussion oriented class team-taught by faculty members from different disciplines on interdisciplinary topics. *(On demand)*

HONR 3701. Science, Technology and Human Values. (3) (V) A study of historical and contemporary issues in the relationship between science and technology, on the one hand, and ethical, religious and social concerns on the other hand. *(Fall)*

HONR 3702. Human Rights and Social Justice. (3) (W,C) Multicultural examination of the foundations of laws which govern human communities and the means by which their authority is legitimated. Justice and Human rights concepts will be considered from the perspectives of a variety of intellectual traditions. *(Spring)*

HONR 3790. University Honors Thesis. (3) Prerequisites: Six hours of Honors course work and consent of thesis director and University Honors Committee. Honors project directed by faculty member. Students may also present thesis ideas for group discussion and critical feedback. May be repeated for credit. *(Spring, Fall)*

HEALTH PROMOTION AND KINESIOLOGY (HPKD)

HPKD 1099. Topics in Games/Exercise/Sports. (1) Specialized topics or innovations in games, exercise and sports. May be repeated for credit as topics vary. *(On demand)*

HPKD 1201. Foundations of Physical Conditioning. (1) The application and basic science of physical training programs designed to improve and maintain physical fitness. *(Fall, Spring)*

HPKD 1202. Weight Training. (1) Mechanics and programming of weight training. *(Fall, Spring, Summer)*

HPKD 1203. Fencing. (1) The skills and rules of the sport of fencing. *(On Demand)*

HPKD 1204. Aerobic Fitness. (1) Exercise designed to develop and maintain physical fitness through aerobic activity to music. *(Fall, Spring)*

HPKD 1206. Adaptive and Development Physical Education. (1) Prerequisite: permission of the instructor. Prescribed ameliorative exercises adapted to individual needs, capacities and interests. Designed for the individual with anatomical and functional defects. *(On demand)*

HPKD 1208. Walk, Jog, Run. (1) Application of exercise science and art principles to the safety and effectiveness of walking, jogging and running as models for improving and maintaining cardiovascular health and physical fitness. *(Fall, Spring)*

HPKD 1209. Step Aerobics. (1) Physical fitness training emphasizing aerobic conditioning via variations and combinations of step patterns performed on adjustable exercise benches and the safety and benefits of low impact movements. *(Fall, Spring)*

HPKD 1210. Beginning Swimming. (1) For weak swimmers or nonswimmers. Instruction in water safety fundamentals, basic body positioning, maneuvering in water, and traveling skills, including basic strokes. *(Fall, Spring)*

HPKD 1211. Intermediate Swimming. (1) Emphasis on gaining competency in at least four basic strokes and increasing endurance. *(Fall, Spring)*

HPKD 1215. Aquatic Fitness. (1) Application of exercise science and art principles to the safety and effectiveness of aquatic exercise as a mode for improving and maintaining general health and physical fitness. *(Fall, Spring)*

HPKD 1220. Beginning Tennis. (1) The rules, basic skills and strategy. *(Fall)*

HPKD 1222. Racquet Sports. (1) Basic skills, tactics, safety and rules of racquetball, court and table tennis, squash and badminton. *(Spring)*

HPKD 1223. Beginning Badminton. The rules, basic skills and strategy. *(On demand)*

HPKD 1231. Introduction to Outdoor Adventure. (1) Prerequisites: successful completion of water safety test and consent of instructor. Introduction to outdoor education through participation in Venture Weekend Workshops, class discussions and written reflection. Six classroom sessions and 5 days of trips individually selected from Venture's offerings for the semester. Special fee assessed for the Venture weekend workshops. *(Yearly)*

HPKD 1232. Orienteering. (1) Introduction of off trail navigation with emphasis in the use of topographic maps, compasses, and route finding for wilderness travel; and the sport of competitive orienteering. Weekly class and 1 or 2 Saturday meets. *(Spring) (Alternate years)*

HPKD 1233. Rock Climbing. (1) Introduction to rock climbing with emphasis on belaying and safety systems, climbing techniques, and the metaphorical and psychological aspects of climbing. Six classroom sessions and two weekend trips. *(Fall, Spring)*

HPKD 1234. Canoeing. (1) Prerequisite: Successful completion of water safety test. Introduction to canoeing on flat water and white water emphasizing basic strokes, river reading, and boating safety. 10 classroom sessions and 2 weekend days. *(Spring)*

HPKD 1235. Adventure Activities. (1) Introduction to personal challenge/discovery activities including group initiatives, trust exercises, high ropes activities involving physical and psychological risk and challenge, and adventure games and cooperative games (New Games). Development of competencies to facilitate adventure activities for groups. *(Yearly)*

HPKD 1240. Beginning Golf. (1) The grip, stance, stroke, use and selection of clubs, rules and etiquette. *(Fall, Spring)*

HPKD 1242. Archery. (1) The fundamental skills and selection, care and repair of equipment. *(On Demand)*

HPKD 1250. Volleyball. (1) The rules, fundamental skills and strategies. *(Fall, Spring)*

HPKD 1262. Recreational Dance. (1) Social and partner dancing in a recreational setting. Basic knowledge of dance steps, dance music, style, leading/following techniques, plus current popular variations. *(On demand)*

HPKD 1263. Body Shaping. (1) Selected methods of resistive exercises used to shape, tone and define musculature. Symmetry, body alignment and flexibility, augmented by the use of hand-held weights bands, benches, and partners in a gymnasium setting. *(Fall, Spring)*

HPKD 2101. Healthy Lifestyles. (3) A health survey course with emphasis on health behavior, decision making and knowledge. *(Fall, Spring, Summer)*

HPKD 2150. Introduction to Health Fitness. (3) Introduction to the study of health fitness relative to philosophies, practices, work settings, trends, knowledge bases, skills and licensures. *(Fall, Summer)*

HPKD 2212. Lifeguarding. (2) The knowledge and skills associated with lifeguarding. Qualifying students will receive the American Red Cross Lifeguarding Certificate. *(Fall, Spring)*

HPKD 2213. Water Safety Instruction. (3) Prerequisite: Competency in all basic swimming strokes. Techniques used in teaching people aquatic skills. Qualifying students will receive the American Red Cross Water Safety Instructor's rating. *(Spring)*

HPKD 2219. Scuba Diving. (2) Corequisite: HPKD 2219L. The science associated with the use of self-contained underwater breathing apparatus. Students who demonstrate the required knowledge and skills may request licensure as an open water SCUBA diver. *(Fall, Spring, Summer)*

HPKD 2219L. Scuba Diving Laboratory. (1) Corequisite: HPKD 2219. Prerequisite: appropriate swimming ability to current scuba standards as prescribed by recognized scuba certifying organizations. The skills associated with the use of self-contained underwater breathing apparatus. *(Fall, Spring, Summer)*

HPKD 2220. Advanced Scuba Diving. (1) Prerequisite: Certified Open Water Diver or licensure as a Basic SCUBA Diver with a minimum of 10 logged dives. The knowledge and skill required for underwater navigation, search and recovery, limited visibility diving and deep diving. Advanced Open Water Diver Licensure will be granted to students who qualify. *(Fall, Spring, Summer)*

HPKD 2230. Wilderness Experience. (3) Corequisite: HPKD 2230L. An introduction to personal challenge through backpacking and high adventure activities with a focus on high level wellness, environmental appreciation and group dynamics. Backpacking and skills to conduct trips; introduction to personal challenge through high adventure activities. Field experiences during class and two weekend trips. *(Fall)*

HPKD 2230L. Wilderness Experience Lab. (1). Corequisite: HPKD 2230. The lab will focus on the skills and knowledge necessary for planning and conducting ones own backpacking trips. The lecture course HPKD 2230 uses the experiences from the lab to increase self knowledge. Two weekend backpacking trips are included. *(Fall)*

HPKD 2232. Wilderness Trip Leading. (1) Prerequisite: HPKD 1231 or 2230 or permission of instructor. Focus on the skills and knowledge necessary for safely leading backcountry trips. Including one weekend backpacking trip and one Saturday day hike. *(Fall)*

HPKD 2234. Challenge Course Facilitation. (1) Prerequisite: HPKD 1235 or 2230 or permission of instructor. Focus on the basic skills and knowledge necessary for safely leading groups through challenge courses. In addition to four evening course meetings, two weekend trainings at the Venture Challenge Courses and some apprenticing are required. *(Yearly)*

HPKD 2251. Introduction to Human Movement: A Personal Approach. (3) Selected methods of observing and analyzing human movement via self-observation and study. *(On demand)*

HPKD 2290. General Safety and First Aid Procedures. (3) Issues associated with safety management, identification and evaluation of trauma situations to support implementation of effective emergency procedures. American Red Cross Standard First Aid and Cardiopulmonary Resuscitation requirements may be met. *(Fall, Spring, Summer)*

HPKD 2294. Basic Athletic Training. (3) Prerequisite: None. An introductory course focusing primarily on the prevention of athletic injuries and illnesses. *(Fall, Spring)*

HPKD 3099. Movement Problems/Topics. (1-6) Prerequisite: consent of instructor. Movement problems/topics chosen by the student which relate to special areas of interest. May be repeated for credit with approval of instructor. *(Fall, Spring, Summer)*

HPKD 3110. Health Risk Reduction for Practitioners. (3) Prerequisites: ITCS 1101, STAT 1222 and HPKD 2101. The art and science of planning, implementing and evaluating health risk reduction strategies, methods and programs. *(Fall)*

HPKD 3130. Lifetime Weight Management. (3) Prerequisites or corequisites: HPKD 3260, HPKD 3140. Examines factors in obesity and weight control, emphasizing techniques in behavior modification and lifestyle change for effective weight management. *(Spring)*

HPKD 3140. Behavior Change Programming in Health Fitness. (3) Prerequisites: HPKD 2101, 2150 and PSYC 1101. Principles of behavior change programming and health consulting through an understanding of program planning and evaluation, the origins of various human behavior, contributing factors, issues in adherence and compliance and modern behavior change theories. *(Spring)*

HPKD 3152. Health and Safety Issues in Middle and Secondary Schools. (2) Prerequisites: Junior or senior status, EDUC 2100 and SPED 2100. Provides the pre-service teacher with the curricular content of health and safety in grades 6-12. Focuses on knowledge and behaviors conducive to health and safety. *(Fall, Spring, Summer)*

HPKD 3200. Special Physical Education for the Mentally Handicapped Child. (3) Prerequisite: admission to teacher education program. Study of movement potentials and limitations of mentally handicapped children and teaching skills necessary to use movement as a medium for physical, social and emotional development. *(On demand)*

HPKD 3228. Integrating Physical Activity and Movement Into Elementary Schools. (2) Prerequisites: EDUC 2100, 3120, and SPED 2100 or admission into the Teacher Education Program. Movement and physical activity for elementary school children. *(Fall, Spring, Summer)*

HPKD 3229. Teaching Health and Safety In the Elementary School. (2) Prerequisites: Junior or senior status, EDUC 2100, 3120, and SPED 2100. Orientation of the elementary specialist to content and curriculum appropriate for teaching health education in grades K-6. *(Fall, Spring, Summer)*

HPKD 3233. Movement Experiences for Elementary School Children. (3) Prerequisites: EDUC 2100, 2110 and 2150. Study of movement and physical activities as applied in the elementary school program. *(On demand)*

HPKD 3251. Human Movement. (3) Prerequisite: HPKD 2251 or permission of instructor. Analysis and application of basic movement in specific sport, dance, gymnastic, and aquatic skills. *(On demand)*

HPKD 3260. Nutrition and Health Fitness. (3) Prerequisites: CHEM 1204, 1204L and HPKD 2101. Introduction to principles and concepts of nutrition and how dietary practices affect health and disease. *(Fall)*

HPKD 3280. Foundations of Exercise Physiology. (3) Prerequisite: BIOL 1273, 1273L, 1274 and 1274L. Physiological foundations of programming exercise for health fitness with emphasis on acute physiological responses to bouts of exercise and chronic physiological responses and adaptations to repeated exercise and programs of exercise. *(Fall)*

HPKD 3285. Conditioning for Maximum Sports Performance. (3) Prerequisite: HPKD 2290 or consent of instructor. A study of biomechanical and physiological principles of conditioning for maximum sports performance. Two lecture and three laboratory hours. *(On demand)*

HPKD 3286. Exercise Evaluation and Conditioning for Health Fitness. (3) Prerequisite HPKD 2280. Methods and protocols for collecting data, interpretation of the data and using data to develop individual and group conditioning programs. *(Spring)*

HPKD 3286L. Methods and Protocols Laboratory. (1) Corequisite: HPKD 3286. Practitioner lab in the use of appropriate data collection methods and protocols. *(Spring)*

HPKD 3290. Advanced Athletic Training I. (3) Prerequisites: BIOL 1274, BIOL 1274L, HPKD 2294. An advanced athletic training course focusing primarily on the evaluation of athletic injuries and illnesses. *(Fall)*

HPKD 3291. Therapeutic Modalities (3). Prerequisite: HPKD 3290. A study of the theories and techniques of therapeutic modalities within the scope of athletic training. *(Spring)*

HPKD 3294. Therapeutic Exercise (3). Prerequisite: HPKD 3290. A study of the theories and techniques of therapeutic exercise within the scope of athletic training. *(Fall)*

HPKD 3400. Athletic Training Clinical I. (3) Prerequisites: HPKD 2294, Junior standing, acceptance into Health Fitness Major. Acquisition and application of clinical proficiencies and psychomotor competencies necessary for the entry-level athletic trainer. *(Fall)*

HPKD 3401. Athletic Training Clinical II. (3) Prerequisite: HPKD 3400. Continuation of HPKD 3400. *(Spring)*

HPKD 4100. Health Fitness Leadership. (3) Prerequisite: HPKD 1201, and completion of a three course sequence in a selected Specialty Area (aerobic, aquatics, lifetime sports, perceptual motor therapy, and outdoor adventure). The first of the semester surveys each of the five Specialty Areas. The second half focuses on a mentoring/pedagogy relationship between each student and an instructor from their chosen Specialty Area. Under the guidance of the instructor, students will lead, direct and monitor students enrolled in a related fitness course. Required of all Health Fitness majors. *(Fall)*

HPKD 4120. Mental and Emotional Well-being. (3) Examines mental and emotional health from the perspective of the health educator's role as a facilitator of mental and emotional wellness. *(2 year cycle)*

HPKD 4121. Health Fitness Pharmacology. (3) Prerequisite: HPKD 2101. The course entails an examination of the historical aspects of use, abuse, and addiction within the realm of health and human performance. This course will expose students to a wide variety of drug issues and the unique use and abuse patterns of individuals in the health fitness arena. *(Fall)*

HPKD 4122. Drugs and Society. (3) Teaching methodology, knowledge and skills for affecting appropriate behaviors through the study of use, misuse and abuse of natural and synthetic chemicals in today's society. *(On demand)*

HPKD 4124. Safety Through the Life Span. (3) Prerequisite: consent of the Department. Introduction to accident/injury prevention emphasizing personal responsibility for health care with a focus on psycho-social development and a wellness approach to safety management. *(On demand)*

HPKD 4126. Adolescent Sexuality and Family Life Education. (3) Designed for teachers, counselors, school nurses, administrators and others responsible for family life education programs in school, with focus on adolescent sexuality issues. *(2 year cycle) (Summer)*

HPKD 4128. Environmental Health: A Global Perspective. (3) Teaching methodology, knowledge and skills for affecting appropriate health behaviors through study of the causes and effects of contemporary environmental problems. *(On demand)*

HPKD 4130. Applied Nutrition for Today's Consumer. (3) Principles of nutrition, dietary guidelines, dietary relationships to diseases and health, special populations, computerized dietary analysis. *(2 year cycle)*

HPKD 4134. Assessment and Development of Physical Fitness. (3) Prerequisite: consent of the instructor. Study of responses and adaptations to exercise, assessment techniques, exercise prescription, leadership and programming. *(2 year cycle)*

HPKD 4136. (3) Health Product and Service Consumerism. Teaching methodology, knowledge and skills for affecting appropriate health behaviors through emphasis on the individual consumer at the health marketplace. *(On demand)*

HPKD 4204. Perceptual Motor Development. (3) Theories, principles and research related to perceptual motor development of children. *(On demand)*

HPKD 4205. Perceptual Motor Learning. (3) Prerequisite or corequisite: HPKD 4204 or consent of instructor. Perceptual-motor learning of children and its effect on school performance and the relationships of perceptual-motor development to reading, writing and mathematics. *(On demand)*

HPKD 4208. Perceptual Motor Therapy. (3) Prerequisite: HPKD 4205 or consent of the instructor. Observation of and evaluation and therapy for children with perceptual-motor delays. *(Fall, Spring)*

HPKD 4210. Perceptual Motor Therapy Laboratory. (1) Prerequisite/corequisite HPKD 4204 or 4205 or 4208. *(Fall, Spring)*

HPKD 4211. Perceptual Motor Therapy Laboratory. (2) Prerequisites/corequisite: HPKD 4204 or 4208. *(Fall, Spring)*

HPKD 4212. Perceptual Motor Therapy Laboratory. (3) Prerequisite: HPKD 4208, 4210, or 4211 and permission of instructor. Supervised observation, testing and clinical teaching of children with perceptual-motor dysfunction.

HPKD 4292. Administration of Athletic Training Programs (3). Prerequisites: HPKD 3291, HPKD 3294. Athletic training organization and administration. *(Spring)*

HPKD 4293. Biomechanics. (3) Prerequisites: BIOL 1273, 1273L, 1274, 1274L and HPKD 2280. Corequisite: HPKD 3293L. Mechanical and anatomical kinesiology as it relates to human movement with emphasis on anatomical structures, mechanics, and common injuries involved with selected sport movements. Requires preparation of a paper on a biomechanical analysis of a sport movement or injury. *(Fall)*

HPKD 4293L. Biomechanics Lab. (1) Corequisite: HPKD 4293. Laboratory experiences and assignments to enhance

the lecture material presented in HPKD 3293. One laboratory period of two hours a week or two one hour labs. *(Fall)*

HPKD 4299. Epidemiology. (3) Prerequisite: permission of the instructor. Traditional aspects of epidemiology, including practical disease concepts, epidemiological measures of health status, mortality and morbidity rates and ratios, descriptive statistics, research design, cohort studies, case-control studies, prospective, and retrospective analysis. *(Fall)*

HPKD 4400. Athletic Training Clinical III. (3) Prerequisite: HPKD 3401. Acquisition and application of advanced clinical proficiencies and psychomotor competencies necessary for the entry-level athletic trainer. *(Fall)*

HPKD 4401. Athletic Training Clinical IV. (3) Prerequisite: HPDK 4400. Continuation of HPKD 4400. *(Spring)*

HPKD 4490. Health Fitness Senior Internship. (6-15) Prerequisites: Completion of all other courses for the major. Application of acquired knowledge and skills in practitioner settings. Each 3 hours of credit requires a minimum of 8 contact hours per week at the internship site. *(Fall, Spring, Summer)*

HPKD 4660. Practitioner Seminar. (3) (W,O) Prerequisites: COMM 1101, COMM 2105 and must be taken during the term prior to internship (HPKD 4490). Emphasis is on state of the art health enhancement practices. *(Fall)*

MANAGEMENT INFORMATION SYSTEMS (INFO)

INFO 2130. Introduction to Business Computing. (3) Prerequisites: MATH 1110 or equivalent. Introduction of computer methods to solve business problems. Emphasis on understanding fundamental hardware and software concepts, selecting and using appropriate hardware and software needed for making various business decisions, and developing practical methods for using the computer to solve quantitative business problems. (May not be taken for upper-level credit in business, but may be taken for general University credit.) *(Fall, Spring, Summer) (Evenings)*

INFO 3000. Topics in Management Information Systems. (3) Prerequisite: INFO 3130. Topics from the area of Management Information Systems. May be repeated for credit. (*On demand*)

INFO 3130. Management Information Systems. (3) Prerequisites: ACCT 2121, 2122, ECON 1201, 2102, INFO 2130; Junior standing. Impact of information systems on management decision-making activities. Principles of the structure and analysis of information flows within an organization. Emphasis on database accumulation and generation, capabilities of information processing, system function (e.g. file creation, report generation, etc.) and evaluation and modification of information systems. (*Fall, Spring, Summer) (Evenings*)

INFO 3200. Foundations in Business Computing. (3) Introduction to computer systems in business with emphasis on the capabilities of computer systems (hardware & software) and skills needed to effectively use computerized decision tools for typical business problems. (Cannot be taken for credit toward any undergraduate degree within the Belk college of Business Administration.) (Formerly INFO 3131.) *(Fall, Spring)*

INFO 3231. Business Applications Development. (3) Prerequisites ITCS 1214 with a C or better and Junior standing or permission of the Department. A study in the development of business applications software. Course emphasizes graphical user interface development using object-oriented, event-driven programming methods and techniques with a high-level development tool such as Visual Basic or Java. *(Fall, Spring)*

INFO 3232. International Information Systems Management. (3) Prerequisite: INFO 3130 or permission of Department. Study of issues and challenges relating to International Information Systems. Topics include: planning and strategic implications of using global information systems and technology; management of global information flows; and, the problems of integrating technology, systems, and people across the globe. *(On demand)*

INFO 3233. Business Database Systems. (3) Prerequisites: ITCS 1214 with a C or better, and INFO 3130, or permission of the Department. A study of the effective management and utilization of organizational data resources in order to design and implement database management systems (DBMS) for business applications. Exploration of basic concepts of database systems and use of the computer to build and manipulate corporate databases. *(Fall, Spring)*

INFO 3234. Business Information Systems Development. (3) Prerequisites: INFO 3231 with a C or better and INFO 3233 with a C or better, or permission of the Department. Examination of the systems development process from the perspective of the systems analyst to provide an understanding of concepts, processes and techniques as they are applied to the systems development life cycle. Emphasis on the use of structured and object-oriented techniques to manage the complexities involved in the analysis phase of systems development. (*Fall, Spring*)

INFO 3235. Advanced Business Information Systems Development. (3) Prerequisites: INFO 3234 with a C or better. Development of Business Information Systems. Emphasis on the development of computer applications as products of the systems development life cycle including the design and implementation phases of systems development, as accomplished through a major class project. (*Fall, Spring*)

INFO 3236. Business Decision Support Systems. (3) Prerequisites: INFO 3231, INFO 3233, and OPER 3100 or permission of the Department. A study of the application of the computer to middle and upper-level management processes to provide computer skills needed to implement such applications. Reading, discussion, and hands-on computer projects. *(On demand)*

INFO 3238. Current Issues in The Management of Information Systems. (3) Prerequisites: INFO 3130, MGMT 3140 or permission of the Department. Information systems and the management of information in an

organization to provide exposure to the decision challenges presented to the corporate manager by the rapid development of information technology and to suggest useful constructs for dealing with them. An integrated, interactive approach to decision making. *(On demand)*

INFO 3239. Business Data Communications. (3) Prerequisites: ITCS 1214 with a C or better and INFO 3130. A study of the current and potential impact of computer data communications technologies on business operations and productivity. Topics include identifying the need for and designing, planning and implementing of system solutions in such areas as text preparation and dissemination, document storage and retrieval, data communication technologies, telecommuting and teleconferencing, data communication networks, messaging and scheduling. *(Fall, Spring)*

INFO 3240. Fundamentals of eBusiness. (3) Prerequisites: INFO 3234; or consent of the Department. A study of the evolving information technologies facilitating electronic business (eBusiness) and the business practices and strategies used to compete in the new wired global marketplace. Topics include the infrastructure for eBusiness, new business strategies and models, web design, and management strategies, and an exploration of a variety of technologies involved in eBusiness. *(Fall, Spring)*

INFO 3500. Cooperative Education Experience. (O) Enrollment in this course is required for the Department's cooperative education students during any semester they are working in a co-op position. This course is restricted to majors in the Department of Management Information Systems and Operations Management. Course evaluation is Satisfactory/Unsatisfactory. (*Spring, Summer, Fall*)

INFO 3800. Directed Study. (1-6) Prerequisites: consent of the Department and junior standing. Enrollment granted only by permission of the faculty with whom the work will be performed. The student's work assignments will be designed by the student and faculty member who will oversee the project of study. The credit hours will be determined prior to enrollment and will be based on the particular project undertaken. (*On demand*)

INTERNATIONAL STUDIES (INTL)

INTL 1101. Introduction to International Studies. (3) An introductory, interdisciplinary survey of the field of international studies. Attention will focus on the economic, geo-political and socio-cultural issues affecting relationships in an increasingly interdependent global system. *(Fall, Spring)*

INTL 2101. Introduction to African Studies. (3) Cross-listed HIST 2211/AAAS 2221. A survey of major developments in 19th and 20th century Sub-Saharan Africa, with emphasis on the European conquest, the colonial period, and the triumph of modern African nationalism. *(Fall)*

INTL 2201. Introduction to Asian Studies. (3) Cross-listed HIST 2201. Focus on the rise of modern Asia from the period just prior to the armed intervention of Western European nations. Emphasis will be placed on the impact of imperialism, colonialism,and the rise of Asian nationalism on Asian societies. *(Spring)*

INTL 2301. Introduction to European Studies. (3) Cross-listed HIST 3116. Causes and results of World War I, rise of new governments, collapse of collective security, World War II and the post-war period. *(Fall)*

INTL 2401. Introduction to Latin American Studies. (3) Cross-listed HIST 2207. A survey of Latin American history from 1826 to the present with emphasis on the economy and society. Special attention to twentieth-century revolutions and the role of the United States in Latin America. *(Spring)*

INTL 3000. Topics in International Studies. (1-3) Analysis of a selected topic related to international studies. The particular topic of the course may vary from semester to semester. A student may repeat the course for credit as topics vary. *(On demand)*

INTL 3400. International Studies Internship. (1-3) Prerequisite: consent of the Director. Practical experience and/or training related to the field of international studies. A minimum of 45 hours per credit. *(Fall, Spring)*

INTL 3800. Independent Study. (1-3) Prerequisite: consent of the Director. Supervised investigation of an issue related to the field of international studies that is of special interest to the student and that is not covered in existing or available courses. *(Fall, Spring)*

INTL 4601. International Studies Seminar. (W) (3) Prerequisite: advanced junior or senior class status. A capstone seminar involving in-depth research and analysis of topics of common interest to all majors, yet specific to each student's area studies concentration. *(Fall, Spring)*

COMPUTER SCIENCE (ITCS)

ITCS 1101. Introduction to Computer Concepts. (3) Prerequisite or corequisite: MATH 1100, 1101, or 1103. Introductory course for non-ITCS/ITIS majors that covers various aspects of computer hardware and software, and surveys the application of computers in different fields--business, medicine, engineering, government, and education. PC-software (word processing, spreadsheets, and databases) is introduced by several projects/assignments. (This course is not the equivalent of ITCS 1214 as a prerequisite for other computer science courses.) May not be taken while a computer science major (or minor). (*Fall, Spring, Summer*) *(Evenings)*

ITCS 1214. Introduction to Computer Science. (3) Prerequisite: MATH 1100, 1101, 1103, or consent of the Department. Basic concepts and terminology of computers; basic data structures, and data and procedural abstraction. Introduction to algorithmic problem solving strategies and algorithm development; event driven programming; and the use of computers to solve numerical and symbolic algorithms. A procedural language, such as C is taught. *(Fall, Spring, Summer)(Evenings)*

ITCS 1215. Introduction to Computer Science II. (3) Prerequisite: ITCS 1214 with a grade of C or better, or

permission of the Department. A continuation of material from ITCS 1214, including elementary software design tools and programming constructs, such as state diagrams, decision tables, recursion, stacks, queues, and trees; dynamic storage allocation; introduction to an object-oriented procedural language, such as C++ or Java. *(Fall, Spring, Summer) (Evening)*

ITCS 2050. Topics in Computer Science. (1-3) Prerequisite: consent of the Department. Topics in computer science selected to supplement the regular course offerings at the 2000 level. (May be repeated for credit with the consent of the Department.) *(On demand)*

ITCS 2116. C Programming. (3) Prerequisite: Knowledge of any other computer programming language or consent of the Department. A study of the programming language C. Data types, operators, functions, program structure, and storage classes, exceptions, concurrent programming, preprocessor. *(On demand)*

ITCS 2163. Introduction to File Processing. (3) Prerequisite: Knowledge of a high-level language which supports random access file methods and ITCS 1215. Concepts and techniques of structuring data on external storage devices; and to provide the foundation for applications of data structures and file processing techniques. *(Fall, Summer) (Evenings)*

ITCS 2181. Computer Logic and Design (3) Prerequisite: ITCS 1214 or consent of the Department. Logic design; logic circuits; memories; tristate devices; bus structures; and data control concepts. *(Fall, Spring, Summer) (Evenings)*

ITCS 2214. Data Structures. (3) Prerequisite: ITCS 1215 with a grade of C or better, or permission of the Department. A continuation of material from ITCS 1215, including general trees and graphs, special purpose trees and graphs; searching/traversing; programming emphasis is on the use of an object-oriented programming language, such as C++ or Java, to implement algorithms related to various data structures. (Fall, Spring, Summer) (Evenings)

ITCS 2215. Design and Analysis of Algorithms. (3) Prerequisite: ITCS 1214 and Math 1165. Techniques and tools for the development of correct algorithms. Structured and modular programming efficiency and correctness, testing recursion, complexity, and heuristics. *(Fall, Spring, Summer) (Evenings)*

ITCS 3050. Topics in Computer Science. (1-3) Prerequisite: consent of the Department. Topics in computer science at the upper-division level. May be repeated for credit as topics vary with the consent of the Department. *(On demand)*

ITCS 3102. Programming Languages. (3) Prerequisite: ITCS 2215. Formal definition of programming languages, including specification of syntax and semantics. Evolution of programming languages and language design principles. Structural organization, control structures, data structures and types, name visibility, binding times, parameter passing modes, subroutines, coroutines, and tasks. Functional programming, list processing, logic programming, object-oriented programming systems. *(Fall, Spring, Summer)(Evenings)*

ITCS 3110. Compiler Construction. (3) Prerequisites: ITCS 3102. Review of programming language structures, translation, loading, execution, and storage allocation. Compilation of simple expressions and statements. Organization of a compiler, including compile-time and run-time tables, lexical scan, syntax scan, object code generation, error diagnostics, object code optimization techniques, and overall design. Use of compiler writing languages and boot strapping. *(Spring, Alternate years)(Evenings)*

ITCS 3112. Design and implementation of Object-oriented Systems. (3) Prerequisite: ITCS 2215 or consent of the Department. Introduction to the basic paradigm of object-oriented programming and system development. Topics include: evolution of object-oriented methodology; concept of the object-oriented approach; object-oriented programming languages; object-oriented analysis and design; the design of software for reuse; and incremental software development. *(Spring)(Evenings)*

ITCS 3120. Introduction to Computer Graphics. (3) Prerequisites: ITCS 2214 and MATH 2164 or consent of Department. Graphics hardware; raster algorithms; geometric transformations; 2D/3D interactive graphics; 3D viewing and perspective projections; color and lighting models; hidden surface removal; modeling hierarchies; fractals; curved surfaces. *(Spring) (Evenings)*

ITCS 3123. Introduction to Numerical Methods. (3) Prerequisites: ITCS 1201 and MATH 1142. General concepts of scientific computing and their applications to such areas as non-linear equations, numerical integration, spline and polynomial interpolation, and initial value problems. *(On demand)*

ITCS 3134. Digital Image Processing. (3) Prerequisites: ITCS 2214, MATH 1242, and MATH 2164, with grades of C or better. Overview of fundamentals of image acquisition, representation, enhancement, segmentation, reconstruction, analysis and recognition. Image generation, viewing and perception; image transformations using the Fourier transform; spatial operations and filtering (spatial and frequency domain); image coding; lossless and lossy compression; boundary and region based segmentation; thresholding and classification; boundary and regional image descriptors; matching and neural networks; shape numbers. *(Fall) (Evenings)*

ITCS 3143. Operating Systems. (3) Prerequisite: ITCS 1215 or consent of the Department. Introduction to multiprogramming operating systems. Process synchronization and management of memory, devices, and files; performance evaluation. *(Fall, Spring, Summer) (Evenings)*

ITCS 3145. Introduction to Parallel Programming. (3) Prerequisite: ITCS 1215. Programming parallel computers and networks of workstations, parallel strategies, algorithms, and applications. *(Fall) (Evenings)*

ITCS 3152. Symbolic Programming. (3) Prerequisite: ITCS 2214. Basic concepts of symbolic programming including selected topics in artificial intelligence, heuristic searching, symbolic algebra, language parsing, and theorem proving. *(Fall) (Evenings)*

ITCS 3153. Introduction to Artificial Intelligence. (3) Prerequisite: ITCS 3152 or consent of the Department. Basic concepts of artificial intelligence. Topics include: defining the problem as a state space search, production systems; heuristic search; basic problem-solving methods; game playing; knowledge representation using predicate logic, semantic nets, frames, and scripts; non-monotonic reasoning, statistical and probabilistic reasoning. *(Spring) (Evenings)*

ITCS 3155. Software Engineering. (3) Prerequisite: ITCS 2215 or consent of the Department. The system development cycle is examined in detail from the aspects of software engineering. Current tools and techniques of systems design-data dictionary, data flow diagrams, structured walkthroughs, and capacity planning will be taught and presented in conjunction with case studies and class problems. (Same as ITIS 3155) *(Fall, Spring) (Evenings)*

ITCS 3160. Data Base Design and Implementation. (3) Prerequisite: ITCS 1215 with a grade of *C* or better. Logical and physical database organization, data models, design issues, and secondary storage considerations. Emphasis on actual participation in the design and implementation of databases. *(Fall, Spring) (Evenings)*

ITCS 3166. Distributed Computer Information Systems. (3) Prerequisite: ITCS 1215 or consent of the Department. Distributed vs. centralized processing. Data communications; speed; capacity, media, protocols. Network architectures. Distribution of data, computer power, and support. Evaluation of alternatives. Case studies. *(Fall, Spring, Summer) (Evenings)*

ITCS 3175. Logic and Algorithms. (3) Prerequisites: ITCS 1214 and MATH 1242. Introduction to propositional calculus; predicate calculus; algorithms; logic functions; finite-state machines; logic design. *(On demand)*

ITCS 3182. Computer Organization and Architecture. (3) Prerequisite: ITCS 2181 or consent of the Department. Machine level representation of data; von Neuman architecture; instruction sets and types; addressing types; assembly and machine language programming; control unit and microprogramming; alternate architectures. *(Fall, Spring, Summer) (Evenings)*

ITCS 3183. Hardware System Design. (3) Prerequisite: ITCS 3182 or consent of the Department. Design of hardwired control systems; processors and memory systems; application specific design; use of simulation tools. Laboratory intensive course. *(Spring) (Evenings)*

ITCS 3216. Introduction to Cognitive Science. (3) Prerequisite: Permission of the Department. Interdisciplinary introduction to the science of the mind. Broad coverage of such topics as philosophy of mind, human memory processes, reasoning and problem solving, artificial intelligence, language processing (human and machine), neural structures and processes, and vision. (Same as PSYC 3216) *(Spring, Alternate Years)*

ITCS 3650. Senior Project. (3) Prerequisites: senior standing, and two ITCS/ITIS 3XXX/4XXX courses with a grade of *C* or better, or consent of the Department. An individual or group project in the teaching, theory, or application of computer science under the direction of a faculty member. Projects must be approved by the Department before they can be initiated. *(Fall, Spring)(Evenings)*

ITCS 3651. Senior Project. (3) Prerequisite: ITCS 3650. A continuation of ITCS 3650. *(Fall, Spring) (Evenings)*

ITCS 3681. Senior Design I. (3) Prerequisites: senior standing, and at least two ITCS/ITIS 3XXX/4XXX courses with a grade of C or better, or consent of the Department. An individual or group computer engineering design project under the direction of a faculty member. Projects must be approved by the Department before they can be initiated. *(Fall, Spring) (Evenings)*

ITCS 3682. Design II. (3) Prerequisites: ITCS 3681. A continuation of ITCS 3681. *(Fall, Spring) (Evenings)*

ITCS 3688. Computers and Their Impact on Society. (3) (VW) Prerequisites: Junior standing and consent of the Department. A study of current topics (software piracy, hacking, professional conduct) in computer science and the impact of computers on various subsets (home, government, and education) of society. *(Fall, Spring) (Evenings)*

ITCS 3690. Seminar. (1-6) Prerequisite: consent of the Department. May be repeated for credit.*(On demand)*

ITCS 3691. Seminar. (1-6) Prerequisite: consent of the Department. A continuation of ITCS 3690. May be repeated for credit. *(On demand)*

ITCS 3695. Computer Science Cooperative Education Seminar. (1) Required of Co-op students during semester immediately following each work assignment for presentation of reports on work done the prior semester. May be repeated for credit. *(Fall, Spring, Summer)*

ITCS 3699. Senior Seminar. (1-3) Prerequisites: Senior standing and consent of the Department. Each participant will prepare a lecture on a topic in computer science. Emphasis will be on communication of technical information as well as on content of the presentations. May be repeated for credit. *(On demand)*

ITCS 4010. Topics in Computer Science. (3) *(On demand)*

ITCS 4102. Survey of Programming Languages. (3) Prerequisite: consent of the Department. Study of the concepts underlying various computer languages and comparing and evaluating various language features. History and development of various languages, such as FORTRAN, ALGOL, PASCAL, MODULA-2, C, C++, Ada, Lisp, Smalltalk, Prolog.; evaluation and comparison of various algorithms and language suitability. Selection of languages for problems/environments. Overview of various languages. *(Fall, Spring) (Evenings)*

ITCS 4107. Formal Languages and Automata. (3) Prerequisites: one semester of discrete structures or consent of the Department. Detailed study of abstract models for the syntax of programming languages and information processing devices. Languages and their representation; grammars, finite automata and regular sets; context-free grammars and pushdown automata; Chomsky Hierarchy; closure properties of families of languages; syntax analysis. *(On demand)*

ITCS 4110. Programming Languages and Compiler. (3) Prerequisite: consent of the Department. Introduction to the concepts and techniques used in describing, defining and implementing programming languages and their compilers. Introduction to parsing and parser construction; LL and LR grammars; syntax directed translation; data object representations; run time structures; intermediate languages; code optimization. *(Spring) (Alternate years) (Evenings)*

ITCS 4112. Software System Design and Implementation. (3) Prerequisite: consent of the Department. Introduction to the techniques involved in the planning and implementation of large software systems. Emphasis on human interface aspects of systems. Planning software projects; software design process; top-down design; modular and structural design; management of software projects; testing of software; software documentation; choosing a language for software system. *(Fall, Spring) (Evenings)*

ITCS 4130. Computer Graphics. (3) ITCS 5130 or equivalent, full graduate standing or consent of Department. Implicit and parametric representation; cubic surfaces; advanced reflection models; global illumination models - ray tracing, radiosity; shadow algorithms, texture mapping; volumetric modeling and rendering techniques; animation; advanced modeling techniques; particle systems, fractals. *(On demand)*

ITCS 4131. Simulation. (3) Prerequisites: MATH 3122 or consent of Department. Emphasis on the design and derivation of mathematical models of dynamic systems; deterministic simulation; random events; non-deterministic simulation; discrete simulation; comparison and optimization. *(On demand)*

ITCS 4141. Computer Organization and Architecture. (3) Prerequisite:ITCS 3182 or equivalent. Fundamentals of computer design; instruction set design, basic processor implementation techniques; pipelining; memory hierarchy; Input/Output. Cost/performance and hardware/software trade-offs. *(Fall, Spring) (Evenings)*

ITCS 4145. Parallel Computing. (3) Prerequisites: ITCS 1215 and 3182 or consent of Department. Types of parallel computers, programming techniques for multiprocessor and multicomputer systems, parallel strategies, algorithms, and languages. *(Spring) (Alternate years) (Evenings)*

ITCS 4150. Intelligent Systems. (3) Prerequisites: ITCS 2215 or consent of Department. To introduce core ideas in AI. Heuristic versus algorithmic methods; problem solving; game playing and decision making; automatic theorem proving; pattern recognition; adaptive learning; projects to illustrate theoretical concepts. *(Fall) (Alternate) (Evenings)*

ITCS 4151. Intelligent Robotics. (3) Prerequisites: ITCS 1215 and MATH 2164, or consent of the Department. General introduction to spatial descriptions and transformations, and manipulator position and motion. More study on robot planning, programming, sensing, vision, and CAD/CAM. *(On demand)*

ITCS 4152. Computer Vision. (3) Prerequisites: ITCS 1215 or MATH 2164, or consent of the Department. General introduction to Computer Vision and its application. Topics include low level vision, 2D and 3D segmentation, 2D description, 2D recognition, 3D description and model-based recognition, and interpretation. *(On demand)*

ITCS 4157. Computer-Aided Instruction. (3) Prerequisite: consent of the Department. History of CAI; study of current CAI systems; development of man-machine dialogue; programming tools for CAI; information structures for computer-oriented learning. Advantages/disadvantages/costs of CAI. *(On demand)*

ITCS 4165. Coding and Information Theory. (3) Prerequisite: knowledge of probability theory. Information theory; coding theory; Shannon's theorem; Markov process; channel capacity; data transmission codes; error correcting codes; data compression; data encryption. *(On demand)*

ITCS 4171. Logic Programming. (3) Prerequisite: ITCS 2215 or consent of the Department. Prolog programming language; programming techniques in Prolog; foundations of logic programming including computability of Horn clause logic, completeness of resolution principle, complexity of unification algorithms, and verification of logic programs; principles of implementing logic programming systems; selected topics from applications of logic programming to expert systems, intelligent database systems, and/or natural language processing. *(On demand)*

ITCS 4181. Microcomputer Interfacing. (3) Prerequisite: ITCS 3182 or ECGR 3181 or permission of the Department. Signal conditioning, A/D conversion, noise, transmission line effects, signal processing, D/A conversion and serial/parallel interfaces. *(Fall, Alternate years) (Evenings)*

ITCS 4183. Computer Arithmetic. (3) Prerequisite: permission of the Department. Principles, architecture, and design of fast two operand adders; multioperand adders, standard multipliers, and dividers. Cellular array multipliers and dividers. Floating point processes, BCD, and excess three adders, multipliers, and dividers. *(On demand)*

SOFTWARE AND INFORMATION SYSTEMS (ITIS)

ITIS 2050. Topics in Software and Information Systems. (1-3) Prerequisite: consent of the Department. Topics in computer science selected to supplement the regular course offerings at the 2000 level. (May be repeated for credit with the consent of the Department.) **(Same as ITCS 2050)** *(On demand)*

ITIS 2111. Beginning Structured COBOL. (3) Prerequisite: ITCS 1214 or INFO 2130 with a grade of *C* or better, or consent of the Department. A study of COBOL and its use in file manipulations, including structures, sorting,

blocks, accessing of files, and transaction processing. Uses of file systems will be studied. *(Fall, Spring, Summer) (Evenings)*

ITIS 2112. Advanced Structured COBOL. (3) Prerequisites: ITCS 2111 or consent of the Department. A continuation of the study of COBOL and its use in developing application programs and systems of programs. Emphasis on the development of programs to run in the interactive environment or batch programs in support of on-line processing. *(Fall, Spring, Summer) (Evenings)*

ITIS 2170. Information Storage and Retrieval. (3) Prerequisite: ITCS 1215. Introduction to the concepts, principles, and skills of information science including tools for the analysis, design, implementation, and evaluation of information systems and information storage. *(Spring, Summer)(Evenings)*

ITIS 3050. Topics in Software and Information Systems. (1-3) Prerequisite: consent of the Department. Topics in computer science at the upper-division level. May be repeated for credit as topics vary with the consent of the Department. **(Same as ITCS 3050)** *(On demand)*

ITIS 3106. Structured Systems Analysis and Design. (3) Prerequisite: ITCS 1215 or consent of the Department. Structured systems development. Strategies and techniques of structured analysis and structured design to produce logical methodologies for dealing with complexity in the development of information systems. *(On demand)*

ITIS 3130. Human-Computer Interaction. (3) Prerequisite: ITCS 2163 or 2170. Concepts of the design of the human-machine environment, with special emphasis on human-computer interaction and how people acquire, store, and use data from the environment and from computers. Topics include: analysis, creation and improvement of equipment and environment to make them compatible with human capabilities and expectation; analysis of existing equipment with respect to user usability and interfacing capabilities. *(Fall, Alternate years) (Evenings)*

ITIS 3131. Human and Computer Information Processing. (3) Prerequisite: ITCS 2163 or 2170. Overview of methods people use to acquire, store, and use the data they receive from the environment and their implementation of computers. Topics include: perception, pattern recognition, attention, memory, knowledge representation, language, and problem solving. *(On demand)*

ITIS 3132. Information Systems. (3) Prerequisite: ITCS 2163 or 2170. Analysis, design, implementation, and evaluation of information systems. Topics include: techniques of manipulating data; behavioral component of dealing with the user and integration of technology, procedures, and people. *(On demand)*

ITIS 3155. Software Engineering. (3) Prerequisite: ITCS 2215 or consent of the Department. The system development cycle is examined in detail from the aspects of software engineering. Current tools and techniques of systems design-data dictionary, data flow diagrams, structured walkthroughs, and capacity planning will be taught and presented in conjunction with case studies and class problems.(Same as ITCS 3155) *(Fall, Spring) (Evenings)*

ITIS 3650. Senior Project. (3) Prerequisite: senior standing, and two ITCS or ITIS 31XX/41XX courses with a grade of *C* or better, or consent of the Department. An individual or group project in the teaching, theory, or application of computer science under the direction of a faculty member. Projects must be approved by the Department before they can be initiated. **(Same as ITCS 3650)** *(Fall, Spring)(Evenings)*

ITIS 3651. Senior Project. (3) Prerequisite: IT IS 3650. A continuation of IT IS 3650. **(Same as ITCS 3651)** *(Fall, Spring) (Evenings)*

ITIS 3690. Seminar. (1-6) Prerequisite: consent of the Department. May be repeated for credit. **(Same as ITCS 3690)** *(On demand)*

ITIS 3691. Seminar. (1-6) Prerequisite: consent of the Department. A continuation of IT IS 3690. May be repeated for credit. **(Same as ITCS 3691)** *(On demand)*

ITIS 3695. Software and Information Systems Cooperative Education Seminar. (1) Required of Co-op students during semester immediately following each work assignment for presentation of reports on work done the prior semester. May be repeated for credit **(Same as ITCS 2695)** *(Fall, Spring, Summer)*

ITIS 3699. Senior Seminar. (1-3) Prerequisite: Senior standing and consent of the Department. Each participant will prepare a lecture on a topic in computer science. Emphasis will be on communication of technical information as well as on content of the presentations. May be repeated for credit. **(Same as ITCS 3699)** *(On demand)*

ITIS 4010. Topics in Computer Science. (3) *(On demand)*

ITIS 4170. Project Management. (3) Prerequisite: ITCS 2215, 3155, or consent of the Department. Classical and matrix organization techniques for project management. The system development cycle. Project control: major documents and milestones; phases, functions, and key documents. Impact of project size and project subject on techniques and procedures. *(Spring)* (*Alternate years*) (*Evenings*)

ITALIAN (ITLN)

ITLN 1201. Elementary Italian I. (4) Fundamentals of the Italian language, including speaking, listening comprehension, reading, and writing. (*Fall*)

ITLN 1202. Elementary Italian II. (4) Prerequisite: ITLN 1201 or permission of the Department. Fundamentals of the Italian language, including speaking, listening comprehension, reading, and writing. (*Spring*)

ITLN 2201. Intermediate Italian I. (4) Prerequisite: ITLN 1202 or permission of the Department. Review of grammar, with conversation and composition. (*On demand*)

ITLN 2202. Intermediate Italian II. (4) Prerequisite: ITLN 2201 or permission of the Department. Continued review of grammar, conversation and composition. (*On demand*)

JAPANESE (JAPN)

JAPN 1201. Elementary Japanese I. (4) Acquisition of communicative competence in speaking, listening comprehension, reading, and writing at a beginning level with attention to cultural awareness. *(Fall, Spring, Summer)*

JAPN 1202. Elementary Japanese II. (4) Prerequisite: JAPN 1201 or permission of the Department. Continuation of JAPN 1201. *(Spring, Summer, Fall)*

JAPN 2201. Intermediate Japanese I. (4) Prerequisite: JAPN 1202 or permission of the Department. Acquisition of communicative competence in speaking, listening comprehension, reading, and writing at an intermediate level with attention to cultural awareness. *(Fall)*

JAPN 2202. Intermediate Japanese II. (4) Prerequisite: JAPN 2201 or permission of the Department. Continuation of JAPN 2201. *(Spring)*

JAPN 3201. Advanced Japanese Grammar, Composition and Conversation I. (4) Prerequisite: JAPN 2202 or permission of the Department. Review of Japanese grammar and guided conversation on prepared topics. Emphasis on spoken Japanese. *(Fall)*

JAPN 3202. Advanced Japanese Grammar, Composition and Conversation II. (4) Prerequisite: JAPN 3201 or permission of the Department. Review of Japanese grammar and guided compositions on prepared topics. Emphasis on vocabulary, idiomatic expressions, and stylistics. *(Spring)*

JAPN 3209. Japanese Civilization and Culture. (3) (W) A study of the life and thought of Japanese-speaking people both past and present. *(Fall, Spring)*

JAPN 3800. Directed Individual Study. (1-3) Prerequisite: permission of the Department. Individual work on a selected area of study with the instructor, generally arranged during the preceding semester. May be repeated for credit. *(On demand)*

JAPN 4410. Professional Internship in Japanese. (1-6) Prerequisites: JAPN 3201 and 3202, or equivalent and consent of the Department. Faculty-supervised field and/or research experience in a cooperating profession (e.g., business) or community organization. Contents of internship based upon a contractual agreement among the student, department, and business or community organization. Offered on a *Pass/No Credit basis*. *(Fall, Spring, Summer)*

JOURNALISM (JOUR)

JOUR 2160. Introduction to Journalism. (3) (W) Introduction to the basics of news reporting, interviewing, and feature writing. Emphasis on development of news and news writing skills, media ethics, diversity, and civic journalism. (*Fall, Spring, Summer*)

JOUR 3050. Topics in Journalism. (3) Prerequisite: JOUR 2160. Timely and important areas relevant to journalism. May be repeated with permission of journalism advisor. *(On demand)*

JOUR 3160. News Writing. (3) Prerequisite: JOUR 2160 or permission of instructor. Journalistic news writing with emphasis on reporting for newspapers. News stories are based on events occurring during the semester. Examination of historical, legal and ethical aspects of the American press. Where story information originates, how stories develop, and the mechanics of placing stories in a newspaper are discussed. An introduction to Internet research tools is included. (*Fall*)

JOUR 3161. News Editing. (3) Prerequisite: JOUR 2160 or permission of instructor. Basic studies in selection, preparation and presentation of news, with primary emphasis on newspapers. Examination of the effects of competition in multimedia news markets. Emphasis on issues of ethics, fairness and accuracy in news coverage. Diversity and legal guidelines affecting news presentation are reviewed. (*Spring*)

JOUR 3162. Feature Writing. (3) Prerequisite: JOUR 2160 or permission of instructor. Researching, writing, and editing a variety of journalistic features, from human interest stories to investigative reporting. Writing styles are addressed. A critical analysis as to how feature stories are developed is included. (*Spring*)

LATIN (LATN)

LATN 1201. Elementary Latin I. (4) Beginning survey of elementary Latin grammar through selected readings. *(Fall)*

LATN 1202. Elementary Latin II. (4) Prerequisite: LATN 1201 or equivalent. Completion of the survey of elementary Latin grammar; connected readings in elementary to intermediate Latin prose. *(Spring)*

LATN 2201. Latin Prose. (3) Prerequisite: LATN 1202 or equivalent. Extended selected readings in Latin prose of intermediate difficulty: Caesar, Nepos, or Seneca. *(On demand)*

LATN 3800. Directed Individual Reading. (1-3) Prerequisite: permission of instructor. Individual work on an author or genre to be arranged with the instructor. *(On demand)*

MATHEMATICS EDUCATION (MAED)

MAED courses offered by the Department of Mathematics are intended primarily for students seeking teacher licensure, license renewal, or license upgrading. These courses may not be used to satisfy the requirements for a major or minor in Mathematics. They may be accepted as non-math electives for B.A. and B.S. degrees in Mathematics and for the M.A. in mathematics education

MAED 3000. Topics in Mathematics Education, Elementary. (1-6) Prerequisite: consent of the Department. Special topics in mathematics education for grades K-6. May be repeated for credit as topics vary. *(On demand)*

MAED 3040. Topics in Mathematics Education, Middle Grades. (1-6) Prerequisite: consent of the Department. Special topics in mathematics education for middle grades. May be repeated for credit as topics vary. *(On demand)*

MAED 3070. Topics in Mathematics Education, Secondary. (1-6) Prerequisite: consent of the Department. Special topics in mathematics education at the secondary level. May be repeated for credit as topics vary. *(On demand)*

MAED 3103. Using Technology to Teach Secondary School Matbematics. (3) Prerequisite: consent of the Department. Technology is a tool for exploring mathematical ideas and representing mathematical concepts, including lab assignments related to using technology throughout the secondary school mathematics curriculum. *(Spring)*

MAED 3105. Geometry in the Secondary School Mathematics Curriculum. (3) Prerequisite: consent of the Department. Study of geometry from synthetic, transformational, and algebraic perspectives including activities and software to enhance the conjecture/theorem/proof process. *(Fall)*

MAED 3232. Teaching Mathematics to Middle School Learners. (3) Prerequisites: Admission to Teacher Education and Senior Standing. Corequisite: SPED 3290. Preparation to teach mathematics at the middle school level with emphasis on problem solving, mathematical connections, manipulatives, cultural diversity, and assessment, including school-based field experiences. *(Spring)*

MAED 3252. Teaching Mathematics to Secondary School Learners. (3) Prerequisite: admission to Teacher Education or consent of the Department. Secondary school mathematics and its relation to the curriculum K-12. Teaching strategies and activities in secondary school mathematics with emphasis on problem solving, mathematical connections, communication, disclosure, and assessment, including school-based field experiences. *(Fall) (Evenings)*

MATHEMATICS (MATH)

All MATH/STAT/OPRS courses offered by the Department of Mathematics are approved to satisfy requirements for the Problem Solving Goal of UNC Charlotte Education.

MATH 0900. Math Study Skills and Algebra Review. (1) This course prepares the student to be successful in college algebra or precalculus. Topics include a review of elementary algebra, exponents and radicals, polynomial and rational functions, equations and inequalities. Study skills needed to be successful in mathematics are an important part of this course. Placement into this course is based on the score on the Mathematics Placement Exam which is administered by the Mathematics Department.

MATH 1100. College Algebra and Probability. (3) Prerequisite: appropriate score on the Mathematics Placement Test or placement by the Department. The basic mathematics course for undergraduates not majoring in Mathematics, Engineering, or the Physical Sciences. Fundamental concepts of algebra. (Credit may not be given for both MATH 1100 and 1103; students who already have credit for MATH 1120 or 1241 with a grade of *C* or better may not take 1100 for credit.) *(Fall, Spring, Summer) (Evenings)*

MATH 1102. Introduction to Mathematical Thinking. (3) Prerequisite: appropriate score on the Mathematics Placement Test or placement by the Department. An introduction to mathematical ideas designed primarily for non-science students. Topics are drawn from various branches of mathematics which may include algebra, geometry, number theory, probability, statistics and graph theory. Computers may be used. *(Fall, Spring)*

MATH 1103. Precalculus Mathematics for Science and Engineering. (3) Prerequisite: appropriate score on the Mathematics Placement Test or placement by the Department. Intended for students who plan to take MATH 1241. Functions and graphs, linear and quadratic functions, polynomial and rational functions, exponential and logarithmic functions, trigonometric identities. (Credit may not be given for both MATH 1100 and 1103; students who already have credit for MATH 1120 or 1241 with a grade of *C* or better may not take MATH 1103 for credit.) *(Fall, Spring, Summer) (Evenings)*

MATH 1105. Finite Mathematics. (3) Prerequisite: appropriate score on the Mathematics Placement Test or placement by the Department. Review of high school algebra, elementary matrix algebra, systems of linear equations and inequalities, elementary linear programming; probability. *(On demand)*

MATH 1120. Calculus. (3) Prerequisite: appropriate score on the Mathematics Placement Test, MATH 1100 or 1103, or placement by the Department. Intended for students majoring in fields other than engineering, mathematics or science. Elements of differential and integral calculus for polynomial, rational, exponential, logarithmic functions, with applications to business and the social and life sciences. (May not be taken for credit if credit has been received for MATH 1121 or 1241.) *(Fall, Spring, Summer) (Evenings)*

MATH 1121. Calculus (ET). (3) Prerequisite: appropriate score on the Mathematics Placement Test; MATH 1100 or 1103; or placement by the Department. Intended for students majoring in Engineering Technology. Elements of differential and integral calculus for polynomial, rational, exponential, logarathmic and trigonometric functions, with applications to engineering. May not be taken for credit if credit has been received for MATH 1120 or 1241. *(Fall, Spring) (Evenings)*

MATH 1165. Introduction to Discrete Structures. (3) Prerequisite: ITCS 1100 or 1201 and its lab. Propositions and truth tables, sets, permutations and combinations, relations and functions, lattices, and trees. *(Fall, Spring, Summer) (Evenings)*

MATH 1241. Calculus I. (3) Prerequisite: appropriate score on the Mathematics Placement Test; MATH 1103 with a grade of C or better, or placement by the Department. Designed for students majoring in Mathematics, Science, or Engineering. Elementary functions, derivatives and their

applications, introduction to definite integrals. (May not be taken for credit if credit has been received for MATH 1141.) *(Fall, Spring, Summer) (Evenings)*

MATH 1242. Calculus II. (3) Prerequisite: MATH 1241 with a grade of C or better. Methods for evaluating definite integrals, applications of integration, improper integrals, infinite series, Taylor series, power series, and introduction to differential equations. (May not be taken for credit if credit has been received for MATH 1242.) *(Fall, Spring, Summer) (Evenings)*

MATH 2050. Topics in Mathematics. (2-3) Prerequisite: consent of the Department. Topics in mathematics elected to supplement regular offerings at the 2000 level. (May or may not count for a Math core course for the ITCS major.) May be repeated for additional credit with the approval of the Department. *(On demand)*

MATH 2103. Problem Solving in Mathematics Using Computers and Calculators in the Classroom. (3) Prerequisite: MATH 2101 with a grade of *C* or better. Calculators in the mathematics curriculum; microcomputer hardware and courseware in mathematics; LOGO; probability; data collection, analysis, and interpretation. May not be used to satisfy requirement for a major or minor in Mathematics. *(Fall, Spring, Summer) (Evenings)*

MATH 2164. Matrices and Linear Algebra. (3) Prerequisite: MATH 1120 or 1241 with a grade of *C* or better or consent of the Department. Matrix algebra, systems of linear equations, vector spaces, linear transformations, determinants, inner products, eigenvalues. *(Fall, Spring, Summer) (Evenings)*

MATH 2171. Differential Equations. (3) Prerequisite: MATH 1242 with a grade of *C* or better. An introduction to ordinary differential equations including first order equations, general theory of linear equations, series solutions, special solutions, special equations such as Bessel's equation, and applications to physical and geometric problems. *(Fall, Spring, Summer) (Evenings)*

MATH 2241. Calculus III. (3) Prerequisite: MATH 1242 with a grade of C or better. Functions of two or more variables, vectors in two and three dimensions, partial derivatives, optimization, double and triple integrals and their applications. (May not be taken for credit if credit has been received for MATH 2141.) *(Fall, Spring, Summer) (Evenings)*

MATH 2242. Calculus IV. (3) Prerequisite: MATH 2241 with a grade of C or better. Parametric curves and surfaces, vector fields, line and surface integrals; Green's theorem, Divergence theorem, Stoke's theorem and applications. Fourier series and its applications. *(Fall, Spring) (Evenings)*

MATH 2340. Number Concepts and Relationships. (3) Prerequisite: MATH 1100 or MATH 103 with a grade of C or better or consent of the Department. A study of integers, rationals, and real numbers; conjectures and intuitive proofs in a number theory; number sequences, patterns, functions; algebraic concepts and skills. An emphasis on the development of problem-solving strategies and abilities. (May not be taken for the major of minor). *(Spring)*

MATH 2341. Algebra and Algebraic Structures. (3) Prerequisites: MATH 2340 with a grade of C or better or MATH 2102 with a grade of C or better or consent of the Department. A study of functions and their properties arising from a variety of problem situations. Representations of real-world relationships with physical models, charts, graphs, equations, and inequalities. Properties of real and complex numbers. Concrete examples of algebraic structures such as groups, rings, fields, and vector spaces. *(Fall)*

MATH 2342. Data Analysis and Probability. (3) Prerequisite: STAT 1220 or STAT 1222 with a grade of C or better or consent of the Department. Introduction to the statistical process. Collection of data from experiments and surveys; organizing, representing, and interpreting data; formulating arguments based on analysis. Plan and conduct experiments and simulations to determine experimental probabilities. Develop counting techniques and other methods to determine probabilities. (May not be taken for the major or minor). *(Spring)*

MATH 2343. Geometry and Measurement. (3) Prerequisite: MATH 1100 or MATH 1103 with a grade of C or better or consent of the Department. A study of properties and relationships of shape, size, and symmetry in two and three dimensions. Explore concepts of motion in two and three dimensions through transformations. Present written and oral arguments to justify conjectures and generalizations. Become familiar with the historical development of Euclidean geometry. (May not be taken for the major or minor). *(Fall)*

MATH 3050. Selected Topics in Mathematics. (2-3) Prerequisite: consent of the Department. Topics selected to supplement regular offerings at the 3000 level in mathematics or statistics. May be repeated for credit with the approval of the Department. *(On demand)*

MATH 3116. Graph Theory. (3) Prerequisite: MATH 2164 or consent of the Department. Graphs as mathematical models. Planarity, colorability, connectivity, trees. Applications and algorithms for networks, matching problems and areas of computer science. *(Fall) (Alternate years)*

MATH 3122. Probability and Statistics I. (3) Prerequisite: MATH 2241 with a grade of *C* or better. Sample spaces, random variables, moment generating functions, some standard distributions, multivariate distributions, laws of large numbers, limit theorems. *(Fall) (Evenings)*

MATH 3123. Probability and Statistics II. (3) Prerequisite: MATH/STAT 3122. Estimation, bias, consistency, efficiency, maximum likelihood estimates, sufficient statistics, testing, the power function, chi-square test, Kolmogorov-Smirnov test. Credit for mathematics major not given for both MATH 3125 and MATH/STAT 3123. *(Spring) (Evenings)*

MATH 3128. Actuarial Science I. (3) Prerequisites: MATH 3122 or the consent of the Department. The mathematical theory of compound interest. The theory and application of contingency mathematics in the life and

casualty areas. Probabilistic and deterministic models for annuities and pensions. *(Spring)*

MATH 3129. Actuarial Science II. (3) Prerequisites: MATH 3128 or the consent of the Department. Deterministic and probabilistic models for annuities and pensions, additional models of risks and financial transactions. *(Fall)*

MATH 3141. Advanced Calculus of One Variable. (3) Prerequisites: MATH 2241 and 2164 with grades of *C* or better. Topology of the real line; continuity, uniform continuity, differentiability, integration, sequences and series of functions. *(Fall) (Evenings)*

MATH 3142. Advanced Calculus of Several Variables. (3) Prerequisite: MATH 3141. Continuity and differentiability of functions of several variables, inverse and implicit function theorems, integration, Fubini's theorem, change of variables, the classical integral theorems of Gauss, Green and Stokes and their generalizations. *(Spring) (Evenings)*

MATH 3146. Introduction to Complex Analysis. (3) Prerequisite: MATH 2241 with a grade of *C* or better. Analytic functions, complex integration, calculus of residues, conformal mapping. *(Spring) (Alternate years)*

MATH 3163. Introduction to Modern Algebra. (3) (W) Prerequisite: MATH 1242 and MATH 2164 with a grade of *C* or better or consent of the Department. Examples and elementary properties of basic algebraic structures, especially groups. The course emphasizes the writing of proofs of elementary theorems. *(Fall, Spring) (Evenings)*

MATH 3166. Combinatorics. (3) Prerequisites: MATH 2164. Combinatorial modeling, generating functions, recurrence relations, inclusion-exclusion principle and problems from recreational mathematics. *(Spring) (Alternate years)*

MATH 3171. Applied Mathematics. (3) Prerequisites: MATH 2241 and 2171 with grades of *C* or better. Separation of variables techniques for the classical partial differential equations of mathematical physics; Fourier series; Sturm-Liouville theory. *(Fall) (Evenings)*

MATH 3176. Numerical Analysis. (3) Prerequisites: ITCS 1100 or 1201 and its lab, MATH 2241 and 2171. Numerical solution of initial value and boundary value problems in ordinary differential equations, direct and iterative methods of solving systems of equations. Selected problems will be programmed for computer solution. *(Spring) (Alternate years)*

MATH 3181. Fundamental Concepts of Geometry. (3) Prerequisite: MATH 2164 with a grade of C or better. Foundations of geometry, transformations, comparison of Euclidean and non- Euclidean geometries. *(Fall, Spring) (Evenings)*

MATH 3551. Mathematics Cooperative Education Experience. (O) Prerequisites: Sophomore standing, a 3.0 GPA in MATH/STAT/OPRS courses and consent of the Department of Mathematics. The student will be employed in a manner that affords him/her the opportunity of using and enhancing mathematical knowledge and skills through practical experience. After completing MATH 3551, the student must take MATH 3652. MATH 3551 may be repeated with consent of the Department. *(On demand)*

MATH 3652. Mathematics Cooperative Education Seminar. (1) Prerequisite: MATH 3551. The student will give an exposition of his/her work experience in MATH 3551. An exposition of underlying theoretical concepts and related ideas may also be required. *(On demand)*

MATH 3688. Mathematics Awareness Seminar. (O) Prerequisite: sophomore standing. Visiting speakers, discussion of internships, cooperative education and job opportunities; selected topics in mathematics. *(Fall)*

MATH 3689. Mathematics Project Seminar. (1) (O) Prerequisite: senior standing. Oral presentation by the student on an area of mathematics or a mathematical problem. *(Fall, Spring)*

MATH 3691. Seminar. (1-6) Prerequisite: consent of the Department. Readings, study and discussion designed to develop the student's ability to study independently and to present results properly. *(On demand)*

MATH 3790. Junior Honors Seminar. (3) Prerequisite: consent of the Department. May be repeated once for additional credit with approval of the Department. *(On demand)*

MATH 3791. Senior Honors Tutorial. (3) Prerequisite: consent of the Department. Individual tutorials in which the student will pursue independent study and research in any area of mathematics under the direction of one or more faculty members. The project of the student will be planned to culminate in a research paper of original or expository nature. May be repeated for additional credit with the approval of the Department. *(On demand)*

MATH 4000. Topics in Foundations or History of Mathematics. (2-3) Prerequisite: consent of the Department. Topics in the foundations or the history of mathematics selected to supplement regular course offerings in this area of mathematics. May be repeated for credit with approval of the Department. Credit for the M.A. degree in Mathematics requires approval of the Department. *(On demand)*

MATH 4040. Topics in Analysis. (2-3) Prerequisite: consent of the Department. Topics in analysis selected to supplement regular course offerings in this area of mathematics. May be repeated for credit with the approval of the Department. Credit for the M.A. degree in Mathematics requires approval of the Department. *(On demand)*

MATH 4060. Topics in Algebra. (2-3) Prerequisite: consent of the Department. Topics in algebra selected to supplement regular course offerings in this area of mathematics. May be repeated for credit with the approval of the Department. Credit for the M.A. degree in Mathematics requires approval of the Department. *(On demand)*

MATH 4080. Topics in Geometry and Topology. (3) Prerequisite: consent of the Department. Topics in geometry or topology selected as to supplement regular course

offerings in this area of mathematics. May be repeated for credit with approval of the Department. Credit for M.A. degree in Mathematics requires approval of the Department. *(On demand)*

MATH 4109. History of Mathematical Thought. (3) Prerequisite: MATH 1241 or consent of the Department. A study of the development of mathematics in its historical setting from the earliest beginnings to modern times. Not approved for the M.A. in mathematics degree. *(Fall) (Evenings)*

MATH 4161. Number Theory. (3) Prerequisite: MATH 3163 with a grade of *C* or better or consent of the Department. A study of the elements of classical number theory including divisibility, congruences, diophantine equations, prime numbers and their distribution, quadratic reciprocity, number-theoretic functions, and famous unsolved problems. Not approved for the M.A. in mathematics degree. *(Spring) (Alternate years)*

MATH 4163. Modern Algebra. (3) Prerequisite: MATH 3163 or consent of the Department. Groups, rings, integral domains, and fields. *(Fall) (Alternate years)*

MATH 4164. Abstract Linear Algebra. (3) Prerequisite: MATH 3163 and 2164 or consent of the Department. Vector spaces over arbitrary fields, linear transformations, canonical forms, and multilinear algebra. *(Spring) (Alternate years)*

MATH 4181. Introduction to Topology. (3) Prerequisite: MATH 2164 with a grade of C or better. Topics from set theory and point set topology such as cardinality, order, topological spaces, metric spaces, separation axioms, compactness and connectedness. *(Fall) (Alternate years)*

MATH 4691. Seminar. (1-6) Prerequisite: consent of the Department. Individual or group investigation and exposition of selected topics in mathematics. *(On demand)*

MATH 4692. Seminar. (1-6) Prerequisite: consent of the Department. A continuation of MATH 4691. *(On demand*

MIDDLE GRADES EDUCATION (MDLG)

MDLG 3130. The Early Adolescent Learner. (4) Prerequisite: Admission to Teacher Education. Physical, sexual, social, cognitive, and emotional development in the 10-15 year old with emphasis on how these developmental diversities affect the middle grades classroom. Includes 40 hours of field experiences. *(Fall)*

MDLG 3131. The Philosophy and Curriculum of Middle Grades Education. (4) Prerequisites: MDLG 3130, admission to Teacher Education. Overview of education in the middle grades (6-9) with emphasis on the foundational components, organizational patterns, instructional programs, and integrated curriculum unique to the middle school. Includes 40 hours field experiences. *(Spring)*

MDLG 3430. Student Teaching/Seminar: 6-9 Middle Grades Education. (15) (O) Prerequisite: Completion of all coursework and approval of an Application for Student Teaching. Planned sequence of experiences in the student's two areas of content specialization conducted in an approved middle school setting under the supervision and coordination of a University supervisor and a cooperating teacher in which the student must demonstrate the competencies identified for his/her specific teaching fields in appropriate grade-level settings. Approximately 35 to 40 hours per week in an assigned school setting, teaching in two areas of concentration; and 10-12 on-campus seminars scheduled throughout the semester. *(Fall, Spring)*

MDLG 3800. Individual Study in Middle Grades Education. (1-6) Prerequisite: Permission of the student's advisor. Independent study under the supervision of an appropriate faculty member. May be repeated for credit. *(Fall, Spring, Summer)*

MLDG 4471. Middle Grades Clinical Experience. (3) Program of learning activities in the student's level and/or area of academic concentration in an approved school setting (gr. 6-9). *(On demand)*

MIDDLE, SECONDARY, AND K-12 EDUCATION (MDSK)

MDSK 3150. Research and Analysis of Teaching Middle and Secondary School Learners. (3) Prerequisites: EDUC 2100, SECD 2140, SPED 2100, and admission to Teacher Education. Corequisite: SECD 3141 or MDLG 3130. Concepts, methods, and practices used by effective teachers in their daily classroom routines, including systematic observation skills, interpretation of observation data, and application of research-based findings. Includes 10 hours of field experiences. *(Fall, Spring)*

MDSK 3151. Instructional Design and the Use of Technology with Middle and Secondary School Learners. (3) Prerequisite: EDUC 2100, SECD 2140 or MDLG 3130, SPED 2100, and admission to Teacher Education. Setting goals and objectives for instruction; planning activities and writing assessments based on objectives; use of computer software for the creation of units, lesson plans, and teacher-made tests. *(Fall, Spring, Summer)*

MDSK 3160. Learning and Development: Birth through Adolescence. (3) Prerequisites: EDUC 2100, SPED 2100, and admission to Teacher Education. Theories of learning and development and a systematic examination of childhood and adolescence, with particular attention to biological, social, and cognitive areas of child development. Includes 10 hours of field experiences. *(Fall)*

MDSK 3161. K-12 Curriculum Studies. (3) Prerequisites: EDUC 2100, SPED 2100, and admission to Teacher Education. Curriculum planning and development skills with emphasis on relating school content and skills to societal and individual needs, designing and implementing integrated activities, and examining the nature and functions of schools. *(Spring)*

MDSK 3251. Teaching Science to Middle and Secondary School Learners. (3) Prerequisites: EDUC 2100, SECD 2140, SPED 2100, MDSK 3150, MDSK 3151, and admission to Teacher Education. Corequisites: SECD 3142 and SPED 3290. Preparation to teach science at the middle

and secondary school levels with emphasis on a holistic, interdisciplinary understanding of science; science as related to everyday life and society; and interdisciplinary aspects of science. Includes 15 hours of field experiences. *(Fall, Spring)*

MDSK 3253. Teaching Social Studies to Middle and Secondary School Learners. (3) Prerequisites: EDUC 2100, SECD 2140, SPED 2100, MDSK 3150, MDSK 3151, and admission to Teacher Education. Corequisites: SECD 3142 and SPED 3290. A methods course for teaching social studies at the middle and secondary school levels. Emphasis on using social science content to develop effective teaching strategies, instructional plans, and classroom materials for teaching social studies to middle and secondary school students. Includes 15 hours of field experiences. *(Fall, Spring)*

MDSK 3469. Student Teaching/Seminar: K-12 Foreign Language. (15) Approval of an Application for Student Teaching. A planned sequence of experiences in the student's area of language specialization (French, German, or Spanish) conducted in an approved school setting under the supervision and coordination of a University supervisor and a cooperating teacher. Students must demonstrate the competencies identified for their language field in two different grade level settings, initially at the elementary level and subsequently at either the middle or secondary school level. Approximately 35-40 hours per week in an assigned school setting and 10-12 on-campus seminars scheduled throughout the semester. *(Fall, Spring)*

MECHANICAL ENGINEERING (MEGR)

MEGR 2141. Engineering Mechanics I. (3) Prerequisite: PHYS 2101 with a grade of C or better. Corequisite: MATH 1242. This course introduces the principles of particle and rigid body mechanics with engineering applications. Force systems and resultants. The equilibrium of particles and rigid bodies. Friction. Properties of areas and volumes. *(Fall, Spring)*

MEGR 2144. Introduction to Solid Mechanics. (3) Prerequisites: MEGR 2141 with a grade of C or better and MATH 2241. Engineering theory of deformable solids and applications. Stress and deformation resulting from axial, torsion and bending loads. Shear and moment diagrams, Mohr's circle for stress and strain and buckling of columns. *(Fall, Spring)*

MEGR 2156. Design Projects Laboratory I. (2) Prerequisites: PHYS 2102, MEGR 2141 with a grade of C or better, and MATH 2241. Co-requisite: MEGR 2180 Manufacturing Systems. Introduction to design as well as the fundamentals of manufacturing, including computer-aided manufacturing (CAM). Emphasis will be placed on design visualization, functional analysis, and design prototyping. Student designs will be manufactured to verify design concepts. *(Fall, Spring)*

MEGR 2180. Manufacturing Systems. (4) Prerequisites: ENGR 1202, PHYS 2102L, MEGR 2141 with a grade of C or better, and MATH 2241. Co-requisite: MEGR 2156, Design Projects Laboratory I. The course will impart a broad overview of manufacturing materials, processes, and procedures. Topics include mechanical behavior and physical properties, basic materials, casting, rolling, forming, welding, cutting, surfaces, engineering metrology, quality assurance, and automation. Basic concepts of engineering economics and cost estimating. The economics of manufacturing will also be introduced, including the time value of money, economic analysis, and cost estimating. *(Fall, Spring)*

MEGR 2299. Motorsports Engineering Clinic I. (1) Prerequisite: admission to Motorsports concentration; sophomore standing. An examination of various aspects of automotive and motorsports engineering presented by faculty and industry representatives. Participation as a Motorsports Trainee (MT) is required. MT's are assigned to automotive projects on campus and/or with industrial partners. *(Fall, Spring)*

MEGR 3090. Special Topics in Mechanical Engineering. (1-4) Prerequisite: consent of the Department. The course will build upon and synthesize the knowledge the students have gained from the mechanical engineering core curriculum. The specific topics covered in each separate offering of the course will serve as the vehicle for teaching engineering analysis, synthesis and design, while simultaneously affording an opportunity for the students to point themselves toward an area of specialization. May be repeated for credit. (*On Demand*) (*Technical Elective*)

MEGR 3111. Thermodynamics I. (3) Co-requisite: MEGR 3121. Prerequisite: MATH 2171 both with a grade of C or better. First and second laws of thermodynamics. Work and heat carnot cycle. Ideal and real gases. Non-reactive mixture of gases. Availability and irreversibility. *(Fall, Spring)*

MEGR 3112. Thermodynamics II. (3) Prerequisite: MEGR 3111, with a grade of *C* or better. General thermodynamic relations; equations of state and generalized charts. Combustion, dissociation, and chemical equilibrium. Introduction to power cycles. *(Spring)*

MEGR 3114. Fluid Mechanics. (3) Prerequisite: MEGR 3121 with a grade of C or better. Basic concepts of a fluid and the fundamentals of ideal and real fluid flow. Topics include fluid statics, conservation principles, Bernoulli's equation, fluid flow in pipes, and measurement devices. *(Fall, Spring)*

MEGR 3116. Introduction to Heat Transfer. (3) Prerequisites: MATH 2171 and MEGR 3111, both with a grade of *C* or better. One and two dimensional steady state conduction. Finite difference methods. Radiative heat transfer, emissivity, black body radiation. Heat exchange among two and multi-body systems. Introduction to concepts and applications of convective heat transfer *(Fall, Spring)*

MEGR 3121. Dynamics Systems I. (3) Prerequisites: MEGR 2141 and MATH 1242, both with a grade of *C* or better. The kinematics and kinetics of rigid bodies. Work-energy and impulse-momentum principles and conservation laws. Introduction to the kinematics of mechanisms. *(Fall, Spring)*

MEGR 3122. Dynamic Systems II. (3) Prerequisites: MEGR 3121 and MATH 2171, both with a grade of C or better. Modeling of mechanical dynamic systems. Vibration of lumped mass systems. Analysis and design of mechanical systems using time domain and frequency domain methods. *(Spring)*

MEGR 3131. Introduction to Electronic Materials. (3) Prerequisite: PHYS 2102, with a grade of *C* or better. Electronic materials and devices with examples from crystalline and amorphous semiconductors, junction and MOS devices, thermoelectrics, lasers and super-conductors. Introduction to the quantum mechanics of electrons in solids, electron-atom interactions and energy band model, providing a basis for rationalizing a wide variety of electronic properties. (*On Demand*) (*Technical Elective*)

MEGR 3152. Mechanics and Materials Laboratory. (1) (W) Prerequisites: MEGR 2144, MEGR 3161 and MEGR 3171L, all with a grade of *C* or better. Co-requisite: MEGR 3122. Laboratory experiments related to the areas of mechanics and materials engineering. Three hours of laboratory work per week. *(Spring)*

MEGR 3156. Design Projects Lab II. (2) Prerequisite: MEGR 2156, with a grade of *C* or better. Study of the process of design and reduction to practice of engineering concepts in a team environment. Requirements definition, concept synthesis, concept evaluation, project planning and execution. *(Fall, Spring)*

MEGR 3161. Introduction to Engineering Materials. (3) Prerequisites: CHEM 1251 and MATH 2171 both with a grade of C or better. Classifications of engineering materials. Introduction to property structure relationships. Ideal and defect atomic structures of solids with examples from metals, ceramics and polymers. Cold working and annealing effects. Phase equilibria in alloys; introduction to diffusional processes and transformation kinetics. *(Fall, Spring)*

MEGR 3162. Mechanical Behavior and Strengthening of Solids. (3) Prerequisite: MEGR 3161, with a grade of C or better. Mechanical properties of materials including elastic behavior, plastic flow, fracture, creep, fatigue, and elevated temperature effects. Correlation of properties with atomic and microscopic structure. Dislocation theory and its application to mechanical behavior and strengthening mechanisms. Alloy hardening effects; effects of processing and heat treatments. Applications in Fe-C alloys. *(Spring) (Technical Elective)*

MEGR 3171. Introduction to Measurements and Instrumentation. (2) Prerequisite: ECGR 2161, with a grade of C or better. Co-requisite: MEGR 3171L. Statistical analysis of experimental data, curve fitting. Operational amplifiers and signal conditioning techniques for remote monitoring. Computer data acquisition, interfaces and techniques, RS-232 and GPIB interface buses. Discussion of the principles involved in the use of sensors and transducers in measurements of linear and angular displacement, velocity and acceleration, temperature, force, pressure, torque and flow. Introduction to dynamic measurements and frequency analysis. (*Fall, Spring)*

MEGR 3171L. Instrumentation Laboratory. (2) (W) Prerequisite: PHYS 2102L and ENGL 2116 with a grade of *C* or better. Co-requisite: MEGR 3171. Utilization of measuring equipment targeted to mechanical engineering applications. Experiments will focus on the use of instrumentation and computer interfacing methods for the optimization of measurement processes. Basic programming of scientific instruments. *(Fall, Spring)*

MEGR 3210. Automotive Power Plants. (3) Prerequisite: MEGR 3112, with a grade of C or better. Energy analysis of internal and external combustion engines for vehicular propulsion. Thermodynamic principles for combustion efficient use of fuel combustion, different types of fuel use, and pollutant control. (*Fall*)*(Technical Elective)*

MEGR 3211. Road Vehicle Dynamics. (3) Prerequisites: MEGR 3121 and MEGR 3122, both with a C or better. An introduction to road vehicle Dynamics. Acceleration and braking performance, road loads, steady-state cornering, suspension, steering system and tire behavior. *(Spring)(Technical Elective).*

MEGR 3212. Heat Convection and Compact Heat Exchanger Design. (3) Prerequisites: MEGR 3114 and MEGR 3116, both with a grade of *C* or better. Natural, forced internal and external heat convection, heat convection in phase change (boiling and condensation) and design of compact heat exchangers *(On demand)(Technical Elective)*

MEGR 3214. Refrigeration and Air/Conditioning. (3) Prerequisites: MEGR 3112 and 3116, both with a grade of C or better. Thermodynamics and heat transfer applied to analysis, design of cooling/heating systems. *(On demand)(Technical Elective)*

MEGR 3216. Thermal/Fluid Design. (3) Prerequisites: MEGR 3114 and 3116, both with a grade of C or better. Design of systems utilizing thermodynamic, heat transfer, and fluid flow principles. Topics include thermal system design, thermodynamic modeling, design applications with heat transfer, thermo-economic optimization of simple and complex systems. (*Spring*)

MEGR 3221. Machine Analysis and Design I. (3) Prerequisite: MEGR 3122 and MEGR 2144, both with a grade of C or better. Technical application of basic principles of mechanical science to analysis of machines and mechanical systems. Design of typical machine elements. Strength and deflection requirements. *(Fall).*

MEGR 3222. Machine Analysis and Design II. (3) Prerequisite: MEGR 3221, with a grade of C or better. Synthesis of machines and mechanical systems. Analysis, creative design and selection of machines and machine elements. (*Spring*)*(Technical Elective)*

MEGR 3251. Thermal/Fluids Laboratory. (1) (W) Prerequisites: MEGR 3111, MEGR 3114, and MEGR 3171L, all with a grade of *C* or better. Laboratory experiments related to the areas of thermodynamics, fluid mechanics, and heat transfer. Three hours of laboratory work per week. *(Fall, Spring)*

MEGR 3255. Senior Design I. (2) Prerequisite: MEGR 3152, MEGR 3156. Co-requisite: MEGR 3251, all with a grade of C or better. Co-requisite: senior standing in mechanical engineering. First of a two-semester sequence leading to a major integrative experience in applying the principles of design and project management to the design of a major mechanical engineering system. Teamwork and communication skills are emphasized. *(Fall, Spring)*

MEGR 3256. Senior Design II. (2) (O) Prerequisite: MEGR 3255 with a grade of C or better. A continuation of MEGR 3255 including project execution leading to an oral presentation and final written report. *(Fall, Spring)*

MEGR 3281. Numerical Control of Manufacturing Processes. (3) Prerequisite: MEGR 2180. Fundamental theory and application of numerically controlled machine tools including design principles, elements of machine structure, control systems programming methods. Role of numerical control in flexible manufacturing systems. Two lectures and a two hour lab per week. (*On demand*) (*Technical Elective*)

MEGR 3282. Statistical Process Control and Metrology. (3) Prerequisite: MEGR 3171. Introduction to metrology. Measurement of size, form and surface texture. Introduction to quality control, control charts for attributes and variables, acceptance sampling. Process capability estimation and process control. (*Spring*) *(Technical Elective)*

MEGR 3299. Professional Development. (1) An examination of various aspects of engineering as a profession. The course will be graded on a Pass/No Credit basis. *(Fall, Spring)*

MEGR 3355. Motorsports Engineering Clinic II. (2) Prerequisite: admission to Motorsports concentration, MEGR 2299, 3152 and 3156, all with a grade of C or better. Co-requisite: MEGR 3251. First of a two-semester sequence leading to a major integrative experience in applying the principles of design and project management to the design of an automotive engineering system. Teamwork and communication skills are emphasize. An examination of various aspects of automotive and motorsports engineering presented by faculty and industry representatives. *(Fall, Spring)*

MEGR 3356. Motorsports Engineering Clinic III. (2) (O) Prerequisite: admission to Motorsports concentration and MEGR 3355. A continuation of MEGR 3355 including project execution, project reporting and leading to an oral presentation and a final written report. An examination of various aspects of automotive and motorsports engineering presented by faculty and industry representative. *(Fall, Spring)*

MEGR 3695. Mechanical Engineering Cooperative Education Seminar. (1) Required of Co-op students during semesters immediately following each work assignment for presentation of engineering reports on work done the prior semester. (*Fall, Spring, Summer*)

MEGR 3890. Individualized Study. (1-3) Prerequisite: consent of the Department. Supervised individual study within an area of a student's particular interest which is beyond the scope of existing courses. May be repeated for credit. (*On demand*)(*Technical Elective*)

MEGR 3990. Undergraduate Research. (1-4) Prerequisite: Consent of the Department. Independent study of a theoretical and/or experimental problem in a specialized area of mechanical engineering. Topics originate from the student or the faculty member supervising the study. May be repeated for credit. *(On demand)*(*Technical Elective*)

MEGR 4112. Intermediate Fluid Mechanics and Vehicle Aerodynamics. (3) (3G) Prerequisites: MEGR 3111 and 3114, both with a grade of C or better. Technical elective. A continuation of MEGR 3114. Topics include flow over body surfaces, lift and drag, boundary layers, ground effect, potential flow theory and compressible flow. Application of aerodynamics to ground vehicles and its effect on vehicle performance and handling. (*Fall) (Technical Elective*)

MEGR 4113. Energy Conversion I. (3) Prerequisites: MEGR 3112 and 3114, both with a grade of C or better. Application of principles of thermodynamics, fluid flow and heat transfer to internal combustion engines, compressors, turbines, heat exchanges, refrigeration, and cryogenics. (*On demand*) (*Technical Elective)*

MEGR 4127. Introduction to Robotics. (3) Prerequisites: ECGR 3101, or senior standing in ME/ES or EE Departments. Modeling of industrial robots, homogeneous transformations, static forces, kinematics, velocities, dynamics, computer animation of dynamic models, motion trajectory planning, and introduction to vision, sensors and actuators. (Dual-listed with ECGR 4161) (*On demand*) (*Technical Elective*)

MEGR 4131. Solid State Transformations. (3) Prerequisite: MEGR 3161 with a grade of C or better. Thermodynamics, morphology and kinetics of solid state transformations. Diffusion and absolute reaction rate theory; crystallographic nature of phase transformations; nucleation and growth processes; precipitation and oxidation reaction. (*On demand*) *(Technical Elective*)

MEGR 4143. Discrete Mechanical Vibrating Systems. (3) Prerequisites: MEGR 3122 with a grade of C or better. Free and forced vibrations of lumped parameter systems with multi-degrees of freedom. Topics include transient and steady state response, determination of natural frequencies and mode shapes with and without damping. Introduction to principal coordinates and matrix iteration techniques. (*On demand*) (*Technical Elective*)

MEGR 4144. Intermediate Dynamics. (3) Prerequisites: MEGR 3121 and MATH 2171, both with a grade of C or better. Further studies in dynamics of particles and rigid bodies, with engineering applications. Introduction to Lagrange's equations of motion. Multi-degree-of-freedom vibrations. (*On demand) (Technical Elective*)

MEGR 4162. Materials Production and Process. (3) Prerequisites: MEGR 3161, with a grade C or better, and consent of instructor. Applications of thermodynamics and chemistry to extractive process metallurgy. Fundamental principles of materials forming operations. Casting,

mechanical working and joining methods. (*On demand) (Technical Elective*)

MEGR 4165. Introduction to Nondestructive Evaluation Methods. (3) Prerequisite: MEGR 3161, with a grade of C or better. Nondestructive evaluation principles and techniques, including liquid penetrate, magnetic particle, acoustic emission, ultrasound, radiography and eddy currents. *(On demand) (Technical Elective*)

MANAGEMENT (MGMT)

MGMT 1140. Introduction to Business. (3) Prerequisite: less than 45 hours earned. Fundamentals of business including marketing, management, production, accounting, finance, economics, information systems and other business areas. A general elective course that does not satisfy a requirement for any concentration or major in the Belk College of Business Administration. *(Fall, Spring)*

MGMT 3000. Topics in Management. (3) Prerequisite: junior standing. Topics from the area of Management and Administration. The course may be repeated for credit. (*On demand*)

MGMT 3140. Management Concepts and Practice. (3) Prerequisites: ACCT 2121, 2122; ECON 2101, 2102, INFO 2130; junior standing. Study of the role of the contemporary manager with emphasis upon the behavioral and administrative processes fundamental to the successful operation of various types of enterprise. Situational approaches to management are explored with the manager viewed as a decision maker interacting with the firm's economic, technological, social, political and ethical environment. Examination of research and theory in organizational behavior, organization theory and interpersonal communication. Case analysis is used to simulate actual problems encountered in organizations. (*Fall, Spring, Summer) (Evenings)*

MGMT 3160. Business Communications. (3) (W) Prerequisite: INFO 2130, junior standing. The nature and problems of individual, interpersonal and organizational communication in business. Various verbal techniques such as presentations, graphics, public speaking and writing will be developed and practiced for effective organizational and individual performance. (*Fall, Spring, Summer) (Evenings)*

MGMT 3173. Being Your Own Boss: Small Business Management for Non-Business Majors. (3) Prerequisites: junior standing. A course for non-business majors who plan to be self-employed as professionals (engineers, psychologists, social workers, free-lance writers, nurses, etc.) or as owners of small enterprises such as theatre groups, art galleries, advertising agencies or similar groups or who plan to work for small family firms after graduation. Includes all aspects of starting, operating and selling a small firm. Emphasizes case studies and practical applications using materials actually needed to operate a real-world firm. Requires preparation of a simulated business plan for the firm the student hopes to start. Not available for credit for Belk College of Business Administration majors or students who receive credit for MGMT 3273. (*On demand*)

MGMT 3240. Leadership and Organizational Behavior. (3) Prerequisite: MGMT 3140 Management Major or Permission of the Chair. A managerial perspective of the influence of leadership, motivation, group dynamics, structure, communications, conflict and change on effective utilization and development of human resources emphasizing the role of a leader as a change agent. Case analysis, role playing and skills development exercises to simulate actual situations. (*Fall, Spring) (Evenings)*

MGMT 3241. Human Resource Management. (3) Prerequisite: MGMT 3140. The study of effectively selecting, utilizing, assessing and developing managers as well as the role of the Human Resource Department in administering human resources in a changing and demanding environment. Experience in developing and utilizing behavioral science research methods to assess effectiveness. (*Fall, Spring) (Evenings)*

MGMT 3242. Compensation Administration. (3) Prerequisites: MGMT 3140 and 3241. Approaches to the design and management of compensation systems. Topics include the objectives of pay systems, policy decisions that provide the foundation for different pay systems, and the tools and techniques that link policies and objectives. (*Fall)*

MGMT 3243. Employment Law. (3) Prerequisite: MGMT 3140. This course examines the legislation which impacts human resource management practices in union and non-union settings. Topics covered include fair employment practices, anti-discrimination law, representation elections, unfair labor practices, compensation and benefit legislation, privacy concerns and dispute settlement processes. (Same as ECON 3107.) (*Fall, Spring) (Evenings*)

MGMT 3244. Advanced Human Resource Management. (3) Prerequisites: MGMT 3241; junior standing. Advanced topics in human resource management including strategic human resource planning, job analysis, human resource information systems, training, career development, and international human resource management. Case studies, projects and presentations are used to help students apply concepts and theories to current human resource issues. (*Spring*)

MGMT 3245. Human Resource Management Systems. (3) Prerequisites: MGMT 3241 and INFO 3130. An examination of the concepts, processes and technologies required for successful management of the human resource function within an organization. Emphasis with be on the acquisition and implementation of human resource management systems (HRMS). Topics covered include HRMS development/acquisitions, applications (including development and use of Intranets), and evaluation of HRMS systems as strategic tools for organizations. Students will gain practical experience in HRMS applications. *(Spring)*

MGMT 3260. Managerial Communication. (3) Prerequisites: MGMT 3140, 3160, junior standing. An examination of the role of communication networks and strategies in managerial decision making. Emphasis on the role of communication skills in managing change, organizational conflict and corporate cultures. Cases will be used to apply the skills developed in MGMT 3140 and 3160

to analyze and address specific management problems. (*Spring*)

MGMT 3273. New Venture Creation. (3) Prerequisites: OPER 3100, MKTG 3110, FINN 3120, MGMT 3140.; junior standing. Consideration of opportunities and obstacles of starting and operating a new business venture. Emphasis will be on integrating all managerial requirements (financial, marketing, operation, legal, logistics, accounting and behavioral) of owning and operating a new venture. Study of opportunities and assistance provided by franchises, federal, state and local agencies. Practice in solving problems gained through case analysis. *(Fall, Spring)*

MGMT 3274. International Business Processes and Problems. (3) Prerequisite: Management Majors and International Business Students only. Junior standing. An introduction to the process, institutions and problems associated with exporting, importing and management of multinational businesses. (*Fall, Spring*)

MGMT 3275. International Management. (3) Prerequisites: MGMT 3274 and senior standing. Preparation for effective management in a world characterized by intense international competition. Case studies, projects, and presentations assist students to apply concepts and theories. *(On demand)*

MGMT 3280. Business Policy. (3) Prerequisites: Senior standing and completion of ECON 3125, OPER 3100, MKTG 3110, FINN 3120, INFO 3130, BLAW 3150, MGMT 3140 and MGMT 3160. (Accounting majors are required to take OPER 3100, MKTG 3110, FINN 3120, INFO 3130, MGMT 3140, BLAW 3150, and either MGMT 3160 or COMM 1101.) Concerns the role of top management of the firm in integrating internal functions and environmental forces. Emphasis on defining economic, technological, ethical, political and social factors affecting the firm and their consideration in setting goals and operating policies. (*Fall, Spring, Summer) (Evenings*)

MGMT 3282. Business and Society. (3) Prerequisites: MKTG 3110, MGMT 3140, BLAW 3150. A study of the impact of management decisions on customers, employees, creditors, shareholders, community interests, ecology, and government (including taxes and the regulatory environment). The objective is to provide future managers with a systematic way of analyzing the impact of management decisions on larger society. (*Fall)*

MGMT 3283. New Venture Experience. (3) Prerequisites: MGMT 3273; consent of Department Chair. Designed for prospective entrepreneurs pursuing the concentration in Entrepreneurship; others may be admitted on a space available basis. During the course, each student will work closely with either the start-up of a new venture or a local entrepreneur with an existing business to complete a plan designed to assist the entrepreneur in some phase of his/her firm. *(Spring)*

MGMT 3500. Cooperative Education Experience. (O) Enrollment in this course is required for the Department's cooperative education students during each semester they are working in a co-op position. This course is restricted to majors in the Department of Management. Course evaluation is Satisfactory/Unsatisfactory. (*Fall, Spring, Summer*)

MGMT 3800. Directed Study. (1-6) Prerequisites: consent of the Department and junior standing. Enrollment granted only by permission of the faculty with whom the work will be performed. The student's work assignments will be designed by the student and faculty member who will oversee the project of study. The credit hours will be determined prior to enrollment and will be based on the particular project undertaken. (*On demand*)

MARKETING (MKTG)

MKTG 3000. Topics in Marketing. (3) Prerequisites: MKTG 3110 with a C or better, or permission of the Department. Topics from the area of marketing. This course may be repeated for credit as topics vary. (*On demand*)

MKTG 3110. Marketing Concepts. (3) Prerequisites for College of Business majors: ACCT 2121 and 2122 with a C or better, ECON 1201 and 1202 with a C or better, INFO 2130 or College Micro Computer Proficiency Test with a C or better, junior standing. Designed to acquaint the student with the marketing concept, various aspects of the marketing-external environment interface, and interrelatedness with other functional areas. Provides marketing majors with a foundation for further study, while offering non-marketing majors a survey of marketing's function in business organizations.

MKTG 3210. Marketing Research and Analysis. (3) Prerequisites: MKTG 3110 with a C or better, STAT 1220. An applications course that covers the entire research process including problem identification, secondary and primary data collection, scaling techniques, questionnaire design, reliability and validity, experimental design, sampling, data analysis, and data communication. (*Fall, Spring*)

MKTG 3211. Advertising and Promotions Management. (3) Prerequisites: MKTG 3110 with a C or better. Covers all areas of marketing promotion, including such topics as advertising, media selection, packaging and sales promotion. Offers basic skills and techniques to allow the student to enter careers in advertising or media. (*Fall,Spring*)

MKTG 3212. Retailing Management. (3) Prerequisites: MKTG 3110 with a C or better. Presents retailing as a part of the marketing distribution phase of a total interactive marketing system. Key concepts covered include consumer and market analysis, store location, store layout, merchandising, pricing and promotional issues and problems. Also considers legal and environmental implications. Emphasis on application of class concepts through case analysis and class discussion. (*Spring*)

MKTG 3213. Professional Selling and Sales Management. (3) Prerequisite: MKTG 3110 with a C or better. An overview of skills and knowledge involved in individual selling and management of sales programs. Emphasis on sales and sales management theories and their applications. (*Fall, Spring*)

MKTG 3214. Internet Marketing. (3) Prerequisites: MKTG 3110 with a C or better, INFO 2130 with a C or better. Emphasis on developing successful Internet marketing strategy based on quantitative and qualitative analysis of customer, competitors and channel members. Incorporates online and offline communication media and hands-on experience with Internet applications. *(Fall)*

MKTG 3215. Global Marketing Management. (X) (3) Prerequisites: MKTG 3110 with a C or better. A course that assesses global market opportunities, develops global market strategies, and implements global market plans. Major topics covered include examining cultural, social, legal, political, financial, and geographical environments. The marketing mix elements are studied in the global environment. (*Fall, Spring*)

MKTG 3216. Consumer Behavior. (3) Prerequisite: MKTG 3110 with a C or better. Examination of the consumer decision-making process including searching for purchasing, using, evaluating and disposing of products and services. Emphasis on how marketing mix, social-cultural factors, inner-characteristics and lifestyle affect consumer behavior. Discussion of current examples, cases and public policy issues. (*Fall, Spring*)

MKTG 3219. Marketing Strategy. (3) Prerequisites: MKTG 3110 with a C or better, completion of at least three marketing elective courses, and senior standing. Integration of all marketing elements in a strategic planning framework. Emphasis on areas of strategic importance, especially those which have significant implications and relevance for marketing policy decisions in competitive situations. *(Fall, Spring*)

MKTG 3400. Marketing Internship. (3) Prerequisites: Junior and senior marketing majors in good standing, with the completion of MKTG 3110. Requires consent of the Department. Provides a meaningful work experience in a field of marketing. Requires 150 hours of supervised employment, 50 hours per credit hour. Internship proposals can be initiated by the student or by the Department. Student should consult the Department Chair well in advance of registration to discuss availability of positions. Proposal forms must be completed and approved prior to registration. Graded on Pass/No Credit basis. Cannot be repeated for credit or taken for credit at the same time or following any other internship for credit. *(Fall, Spring, Summer)*

MKTG 3500. Cooperative Education Experience. (0) Enrollment in this course is required for the department's cooperative education students during each semester they are working in a co-op position. This course is restricted to majors in the Department of Marketing. Course evaluation is Satisfactory/Unsatisfactory. (*Fall, Spring, Summer*)

MKTG 3800. Directed Study. (1-3) Prerequisites: consent of the Department and junior standing. Enrollment granted only by permission of the faculty with whom the work will be performed. The student's work assignments will be designed by the student and faculty member who will oversee the project of study. The credit hours will be determined prior to enrollment and will be based on the particular project undertaken. (*On demand*)

MILITARY SCIENCE (MSCI)

MSCI 1101. Introduction to ROTC. (1) Pre-professional co-requisite: MSCI 1101L. Introduction to ROTC and the U.S. Army including the rationale of the national defense structure and the mission and the role of the Army. Participation in the physical fitness program is optional. *(Fall, Spring)*

MSCI 1101L. Introduction to ROTC. (O) Leadership lab. Practical application of the material leamed in the co-requisite course. *(Fall) & (Spring)*

MSCI 1102. Introduction to Leadership. (1) Pre-professional co-requisite: MSCI 1102L. Leam and apply the principles of self-discipline and self-confidence in activities such as basic drill, physical fitness, rappelling, leadership reaction course, first aid, making presentations, and marksmanship. Participation in the physical fitness program is optional. *(Spring, Fall)*

MSCI 1102L. Introduction to Leadership. (1) Leadership Lab. Practical application of the material leamed in the co-requisite course. *(Spring, Fall)*

MSCI 2101. Individual and Team Development. (1) Pre-professional co-requisite: MSCI 2101L. Leam the fundamental of ROTC's Leadership Development Program (LDP). Ethics based training introduces students to military oral presentations, effective writing, and event planning. Map-reading techniques are also introduced. Participation in the physical fitness program is optional. *(Fall, Spring)*

MSCI 2101L. Individual and Team Leadership Development. (0) Leadership Lab. Practical application of the material learned in the co-requisite course. *(Fall, Spring)*

MSCI 2102. Individual and Team Military Tactics. (1) Pre-professional co-requisite: MSCI 2102L. Introduction to small-unit tactics. Students will conduct radio communications, do risk-assessments and study movement techniques while working with more experienced MSCI 3102 students. Participation in the physical fitness program is optional. *(Spring, Fall)*

MSCI 2102L. Individual and Team Military Tactics. (1) Leadership Lab. Practical application of the material leamed in the co-requisite course. *(Spring, Fall)*

MSCI 3101. Leading Small Organizations I. (3) Pre-professional co-requisite: MSCI 3102L. Study in small group leadership, emphasizing public speaking. Each student is given at least five evaluated public speaking opportunities. Studies include staff functions, communications, advanced land navigation, marksmanship, and the advanced tactics. Participation is three one-hour sessions of physical fitness is mandatory each. One weekend exercise is required and three more are optional. *(Fall)*

MSCI 3101L. Leading Small Organizations I. (1) Leadership Lab. Practical application of the material leamed

in the co-requisite course. *(Fall)*

MSCI 3102. Leading Small Organizations II. (3) Pre-professional co-requisite: MSCI 2102L. Study in small group leadership, emphasizing written communication. Each student will be given at least five evaluated writing assignments. Studies focus on advanced tactics and leadership training. The course prepares students for Advanced Summer Camp where they compete against students from across the country in leadership ability. Ethical decision-making, and exercises in planning, organizing and executing tactical maneuvers are also areas of study. Participation in three one-hour sessions of physical fitness is mandatory each week. One weekend exercise is required and three others are optional. *(Spring)*

MSCI 3102L. Leading Small Organizations II. (1) Leadership Lab. Practical application of the material learned in the co-requisite course. *(Spring)*

MSCI 4101. Ethics and Values of an Army Professional. (3) Pre-professional co-requisite: MSCI 4101L. All training incorporates an emphasis on ethics and values. Plan, conduct, and evaluate activities of the ROTC cadet organization. Study the Army training management, administrative, judicial, and logistical systems with an emphasis on ethical standards, ethical decision-making process, and the professional and moral obligations of military officers. Participation in three one-hour sessions of physical fitness is mandatory each week. Participation in one weekend exercise is required, and three more are optional. *(Fall)*

MSCI 4101L. Ethics and Values of an Army Professional. (1) Leadership Lab. Practical application of the material learned in the co-requisite course. *(Fall)*

MSCI 4102. Transition to Lieutenant. (3) Pre-Professional co-requisite: Emphasis is on refining students into well-rounded leaders. Topics include: the role of an officer as a trainer, resolves ethical dilemmas, and refine counseling and motivating techniques. Military Law is a primary focus of the course. Participation in three one-hour sessions of physical fitness is mandatory each week. Participation in one weekend exercise is required, and three more are optional. *(Spring)*

MSCI 4102L. Transition to Lieutenant. (1) Leadership Lab. Practical application of the material learned in the co-requisite course. *(Spring)*

MUSEUM STUDIES (MSTS)

MSTS 2101. Introduction to Museum Studies. (3) Survey of the museum profession; types, philosophies, functions and goals of museums; and responsibilities to the profession and to educating the public and scholarly communities. (*Fall*)

MSTS 3090. Topics in Museum Studies. (1-3) Prerequisite: MSTS 2101, 3101, 3102, or consent of instructor. Examination of specialized topics in museum studies. May be repeated for credit as topics vary. (*On demand*)

MSTS 3101. Curation and Collections. (3) Prerequisite: MSTS 2101. Types of collections, storage, records, policies, conservation, liabilities and legal issues; uses of collections. (*Spring*)

MSTS 3102. Research and Documentation. (3) Prerequisite: MSTS 2101. Research in the museum; interdisciplinary research methodologies, documentation of collections, exhibit planning and preparation, publications documenting collections. Students will be required to develop a research project in conjunction with some aspect of museum work. (*On demand*)

MSTS 3201. Museum Education. (3) Prerequisite: MSTS 2101. Museums as educational institutions; interpretation of collections for exhibitions and how to develop educational programs for museums. (*Fall*)

MSTS 3202. Museum Administration. (3) Prerequisite: MSTS 2101. Survey of museum organization and administration; ethics and policies, governing authorities, relationship to public, ethics, legal and financial matters, including budget planning and grant applications. (*On demand*)

MSTS 3203. Exhibition Design. (3) Prerequisites: MSTS 2101 (for Museum Studies Minors), or ARTS 2181 (for Art Majors). Theory, interpretation, design and fabrication of exhibitions for museums, galleries, and other cultural, corporate, educational and public use. Six hours. (Same as ARTS 3287) *(Spring) (Alternate years)*

MSTS 3480. Internship in Museum Studies. (1-3) Prerequisite: MSTS 2101, at least six hours of Museum Studies core courses beyond 2101 and consent of Program Coordinator. Research and/or in-service training in area museums. Content of each internship will be based upon a contractual agreement between the student, Program Coordinator and museum. Amount of credit to be determined by the nature and extent of the internship assignment. May be repeated for credit up to a maximum of six semester hours. *(Pass/No Credit basis) (Fall, Spring, Summer)*

MSTS 3601. Senior Internship or Project. (3-6) Prerequisite: senior standing, MSTS 2101 and Museum Studies core courses. Senior project or internship in any of the subareas of the museum field relevant to the major discipline and specific interests of the student or a synthesis of prior work. *(Pass/No Credit basis) (Fall, Spring, Summer)*

MSTS 3895. Directed Individual Studies. (1-4) Prerequisite: MSTS 2101 and consent of Program Coordinator. Supervised investigation of problems and areas in the museum profession of special interest to the student. May be repeated for credit. (*Fall, Spring, Summer*)

MUSIC (MUSC)

MUSC 0971. Orchestra. (1) A performing ensemble. May be repeated for credit. Three contact hours. (*Fall, Spring*)

MUSC 0972. Jazz Ensemble. (1) Prerequisite: consent of instructor. A performing ensemble. May be repeated for credit. Three contact hours. (*Fall, Spring*)

MUSC 0973. Symphonic Band. (1) A performing ensemble. May be repeated for credit. Three contact hours. (*Fall, Spring*)

MUSC 0974. Guitar Ensemble. (1) Prerequisite: consent of instructor. A performing ensemble. May be repeated for credit. Three contact hours. (*Fall, Spring*)

MUSC 0982. University Chorale. (1) A performing ensemble. May be repeated for credit. Three contact hours. (*Fall, Spring*)

MUSC 0983. Chamber Singers. (1) Prerequisite: audition. A performing ensemble. May be repeated for credit. Three contact hours. (*Fall, Spring*)

MUSC 1100. Rudiments of Music. (3) Introductory skill-building course in music reading. (*On demand*)

MUSC 1132. Music Appreciation. (3) (A) Aural approach to musical comprehension. (*Fall, Spring, Summer*)

MUSC 1133. The History of Rock Music. (3) A chronological approach to the evolution of rock music, its varied styles and artists. (*Fall, Summer*)

MUSC 1134. The Evolution of Jazz. (3) A chronological approach to the history of jazz, its main styles and artists. (*Spring*)

MUSC 1221. Classroom Instruments. (1) Playing and teaching techniques and materials for rhythm instruments, autoharp, guitar, and mallet (Orff) instruments. *(Spring)*

MUSC 1223. Woodwind Techniques, Methods, and Materials I. (1) Playing and teaching techniques and materials for flute, oboe, clarinet, bassoon, and saxophone. *(Fall)*

MUSC 1224. Woodwind Techniques, Methods and Materials II. (1) Continuation of MUSC 1223. (Spring)

MUSC 1225. Brass Techniques, Methods and Materials I. (1) Playing and teaching techniques and materials for trumpet, horn, trombone, euphonium, and tuba. *(Fall)*

MUSC 1226. Brass Techniques, Methods, and Materials II. (1) Continuation of MUSC 1225. *(Spring)*

MUSC 1227. String Techniques, Methods and Materials I. (1) Playing and teaching techniques and materials for violin, viola, cello, and bass. Two contact hours. *(Fall)*

MUSC 1228. String Techniques, Methods and Materials II. (1) Continuation of MUSC 1227. *(Spring)*

MUSC 1229. Percussion Techniques, Methods and Materials. (1) Playing and teaching techniques and materials for snare drum, timpani, mallet percussion, and accessory instruments. *(Spring)*

MUSC 1230. Musical Structure and Style I. (2) Prerequisite: consent of instructor. Study of music fundamentals through simple tonality and 4-part writing. Three contact hours. (*Fall*)

MUSC 1231. Musical Structure and Style II. (2) Prerequisite: consent of instructor. A continuation of MUSC 1230. Further study of tonal relations, including secondary dominants and modulation. Three contact hours. (*Spring*)

MUSC 1233. Class Piano I. (1) Prerequisite: Departmental permission. Class instruction in piano. Three contact hours. (*Fall*)

MUSC 1234. Class Piano II. (1) Prerequisite: Departmental permission. A continuation of MUSC 1233. Three contact hours. (*Spring*)

MUSC 1237. Class Voice. (1) Class instruction in voice. Three contact hours. May be repeated for credit. (*Fall, Spring*)

MUSC 1238. Guitar Class I. (2) Prerequisite: consent of instructor. Class instruction in guitar using contemporary popular music and music from a text. Three contact hours. (*On demand*)

MUSC 1239. Guitar Class II. (2) Prerequisite: consent of instructor. Continuation of MUSC 1238. Three contact hours. (*On demand*)

MUSC 1240-1259. Applied Music courses consist of private instruction, one-half hour instruction per credit hour, per week. Unless instructed otherwise, students should take a one-hour lesson per week (2 credits). Minimum of one hour practice per day for one credit, two hours for two credits. May be repeated for credit.

MUSC 1240. Applied Music: Euphonium. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1241. Applied Music: Trumpet. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1242. Applied Music: French Horn. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1243. Applied Music: Trombone. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1244. Applied Music: Tuba. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1245. Applied Music: Guitar. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1246. Applied Music: Harp. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1247. Applied Music: Organ. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1248. Applied Music: Piano. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1249. Applied Music: Violin. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1250. Applied Music: Viola. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1251. Applied Music: Cello. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1252. Applied Music: Bass. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1253. Applied Music: Voice. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1254. Applied Music: Flute. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1255. Applied Music: Clarinet. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1256. Applied Music: Saxophone. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1257. Applied Music: Oboe. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1258. Applied Music: Bassoon. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1259. Applied Music: Percussion. (1-2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1260. Ear Training I. (1) Prerequisite: consent of instructor. The development of aural skills through sight singing, melodic, rhythmic and harmonic dictation. Three contact hours. (*Fall*)

MUSC 1261. Ear Training II. (1) Prerequisite: consent of instructor. Continuation of Ear Training I. Three contact hours. (*Spring*)

MUSC 2137. Phonetics and Articulation for Singers I. (1) Prerequisite: consent of instructor. Pronunciation and articulation in vocal music in English, Italian, German and French. Three contact hours. (*Fall*)

MUSC 2138. Phonetics and Articulation for Singers II. (1) Prerequisites: MUSC 2137 and consent of instructor. Three contact hours. (*Spring*)

MUSC 2191. Incorporating Music Into the Elementary Classroom. (3) Student will develop basic music skills through elemental media. Field work required. (3 hours of observations) (For non-majors only) (*Fall*)

MUSC 2192. Elementary Music Methods. (2) Prerequisite: consent of instructor. Methods and materials for teaching music to elementary school children. Field work required. (10 hours of observations, 2- 15 minute teaching experiences) (*Fall*)

MUSC 2193. Secondary Music Methods. (2) Methods and materials for teaching music to junior and senior high school students. (*On demand*)

MUSC 2194. Elementary Instrumental Methods. (2) Prerequisite: consent of instructor. Study and analysis through individual evaluation and in-class group performance of current elementary instrumental method books and teaching strategies. Field work required. Three contact hours. (Fall)

MUSC 2195. Secondary Instrumental Methods. (2) Prerequisite: consent of instructor. Musical, organizational, and administrative aspects of teaching junior and senior high school bands and orchestras. Field work required. Three contact hours. (Spring)

MUSC 2230. Musical Structure and Style III. (2) Prerequisite: consent of instructor. A continuation of MUSC 1231. Further study in tonal relations, including borrowed chords, Neapolitan and augmented sixth chords. Three contact hours. (*Fall*)

MUSC 2231. Musical Structure and Style IV. (2) Prerequisite: consent of instructor. A continuation of MUSC 2230. Study of late 19th and early 20th century chromaticism, including impressionism--may include a study of some formal designs. Three contact hours. (*Spring*)

MUSC 2233. Class Piano III. (1) Prerequisite: Departmental permission. Continuation of Class Piano II. Three contact hours. (*Fall*)

MUSC 2234. Class Piano IV. (1) Prerequisite: Departmental permission. Continuation of Class Piano III. Two contact hours. (*Spring*)

MUSC 2235. Jazz Improvisation I. (2) Prerequisite: consent of instructor. An introduction to major, minor diminished, augmented, 7th, 9th, 11th, and 13th chords and to their usage within the confines of a piece of music with particular attention to the melodic line. (*Fall*)

MUSC 2236. Jazz Improvisation II. (2) Prerequisite: consent of instructor. An expansion of MUSC 2235, with particular attention to refinement and maturity of the melodic line. (*Spring*)

MUSC 2237. Counterpoint. (2) Prerequisite: consent of instructor. An introduction to the polyphonic techniques of 16th and 18th century music. (*Spring*)

MUSC 2260. Ear Training III. (1) Prerequisite: consent of instructor. Continuation of Ear Training II. Three contact hours. (*Fall*)

MUSC 2261. Ear Training IV. (1) Prerequisite: consent of instructor. Continuation of Ear Training III. Three contact hours. (*Spring*)

MUSC 3001. Topics in Music. (1-6) Prerequisite: consent of instructor. Special topic in music. May be repeated for credit. (*On demand*)

MUSC 3134. Fundamentals of Conducting. (2) Conducting techniques for instrumental and choral ensembles. Three contact hours. *(Fall)*

MUSC 3135. Choral Conducting. (2) Prerequisite: MUSC 3134. Developing conducting skills for interpreting choral music. (*Spring)*

MUSC 3136. Instrumental Conducting. (2) Prerequisite: MUSC 3134. Developing conducting skills for interpreting instrumental music. (*Spring*)

MUSC 3137. Vocal Pedagogy. (1) Prerequisite: two semesters of MUSC 1253 or permission of instructor. A methodology course dealing with technique, vocal problem/solution and physiology, and voice production. (*Spring*)

MUSC 3139. Orchestration. (3) Prerequisite: MUSC 2231. Scoring and arranging for instruments and/or voice. (*On demand*)

MUSC 3140. Secondary Choral Methods. (2) Rehearsal techniques, repertoire, and administration of junior and senior high school choral groups. Includes mixed concert choirs, male and female choirs, and techniques for show/jazz choir. Field work required. Three contact hours. *(Fall)*

MUSC 3141. Music Teaching Methods and Learning Theory. (2) Prerequisite: consent of instructor. Study and application in the elementary school music class of the music teaching/movement methods and philosophies of Orff, Dalcroze, Laban, Gordon, and Kodaly. Field work required. Three contact hours. *(Spring)*

MUSC 3145. Arranging for the Music Educator. (1) Prerequisite: Departmental permission. Techniques used to arrange music for instrumental and vocal ensembles from existing sources. Three contact hours. *(Fall)*

MUSC 3150. Accompanying. (1) Prerequisite: consent of instructor. Accompanying techniques for pianists. Required accompanying of solos by other student musicians. Separate sections for piano majors and music educators. One contact hour. *(Fall, Spring)*

MUSC 3151. Computer Skills for the Music Educator. (1) Prerequisite: consent of instructor. The study of contemporary MIDI and computer related technologies available to the music educator. One contact hour. *(Fall)*

MUSC 3170. Music History I. (A) (O) (3) Prerequisite: consent of instructor. Music history and literature from the Medieval Period through the Classical era. (*Fall*)

MUSC 3171. Music History II. (W) (3) Prerequisite: consent of instructor. Music history and literature from the Romantic Era to the present. (*Spring*)

MUSC 3230. Musical Structure and Style V. (3) Prerequisite: consent of instructor. Continuation of MUSC 2231. Study of 20th century music, including Neoclassicism, Post-serialism, Minimalism, and Neoromanticism. (*Fall*)

MUSC 3231. Musical Structure and Style VI. (3) Prerequisite: consent of instructor. Study of larger musical structures such as symphony, concerto, contrapuntal designs, and 20th century approaches to form and analysis. (*Spring*)

MUSC 3281. Chamber Music Ensembles. (1) Prerequisite: consent of instructor. Performance by small groups of specific works. (*Fall, Spring*)

MUSC 3283. Opera Workshop. (2) Prerequisite: audition. Performance of scenes, acts, and entire operas. May be repeated for credit. Three contact hours. (*Fall, Spring*)

MUSC 3467. Student Teaching/Seminar: K-12 Fine and Performing Arts: Music. (15) Prerequisite: approved application for student teaching; senior status; completion of professional education requirements; grades of *C* or better in all courses required for licensure. Corequisite: enrollment only in student teaching. A planned sequence of experiences in the student's area of specialization conducted in an approved school setting under the supervision and coordination of a University supervisor and a cooperating teacher in which the student demonstrates the competencies identified for his/her specific teaching field in an appropriate grade level setting. *(Spring)*

MUSC 3831. Composition. (2) Prerequisite: consent of instructor. Private instruction. May be repeated for credit. One contact hour. (*Fall, Spring*)

NURSING (NURS) (NURN)

NURS 1100. Growth and Development. (3) (Open to non-nursing majors.) Study of the developing person through the life span. Consideration of the meaning of health and illness to the individual, the family, and the community within the context of life as a continuing, dynamic process from conception through death. (*Fall, Spring*)

NURN 3100. Professional Nursing Perspectives. (3) Prerequisite: Admission to RN/BSN curriculum or permission of instructor. Introduces professional nursing with emphasis on theoretical, ethical, and legal models guiding practice. *(Fall, Spring)*

NURS 3101. Concepts and Skills for Professional Nursing. (5) Prerequisite: Admission to the major. Pre-or Co-requisite: NURS 3103, 3104 and 3113. Concepts, skills and attitudes fundamental to professional nursing practice within a framework for clinical decision-making. Nurse-client relationship viewed from a holistic perspective with emphasis on the client's adaptive responses in health and illness. Various clinical practice settings are utilized. *(Fall)*

NURS 3103. Pharmacology in Health and Illness. (3) Prerequisites: BIOL 1274. Prerequisite or corequisite: BIOL 1259, or permission of instructor. Presentation of theoretical base for the safe and therapeutic use of drugs. Examination of pharmacologic agents commonly used in health and illness and the standards and societal controls of drugs. Three class hours weekly. (*Fall*)

NURS 3104. Nutrition in Health and Illness. (3) Prerequisites: CHEM 1252 or 1204 or permission of instructor. Nutrition in health and illness viewed from a life cycle perspective. Exploration of therapeutic and cultural aspects of nutrition. (Open to non-nursing majors.) (*Fall*)

NURS 3113. Health Assessment. (3) Prerequisites: BIOL 1274, NURS 1100, or permission of instructor. Corequisite: NURS 3101 or permission of instructor. Competencies necessary for holistic health assessment across the lifespan.

Evaluation of human function using interview, nursing observation, and physical examination data within a framework for clinical decision-making. *(Fall, Spring)*

NURS 3114. The Nursing Profession. (2) Evolution of professional nursing including examination of ethical, legal, and other social models that impact on the profession. (Open to non-nursing majors.) *(Fall)*

NURS 3115. Health and the Aging Process. (3) Examination of the physiological processes of aging as a normal life experience. Study of psychological, nutritional and general health issues designed to facilitate high-level wellness. *(Same as GRNT 3100)(Spring)*

NURS 3200. Research and Theoretical Foundations of Nursing. (3) Prerequisites: Level I courses. Exploration of the theoretical foundations of nursing with emphasis on research, theories, concepts and processes leading to their application in practice.*(Fall, Spring)*

NURS 3201. Nursing Care of the Childbearing Family. (6) Prerequisites: Level I courses. Corequisite: NURS 3200. Development of competencies for the nursing care management of childbearing families with emphasis on the nurse's role in health assessment, health promotion, and promotion of adaptive processes for childbearing families. Sociocultural, economic, political and ethical factors that impact on health promotion, disease prevention, and risk reduction for the childbearing family are examined. Selected settings are utilized for clinical practice. *(Fall, Spring)*

NURS 3202. Nursing Care of Children. (6) (O) Prerequisites: Level I courses. Corequisite: NURS 3200. Development of competencies for the nursing care management of children experiencing potential and actual alteration in health with emphasis on the nurse's role in health assessment, health promotion, and promotion of adaptive processes for the child within the context of the family. Selected settings are utilized for clinical practice. *(Fall, Spring)*

NURS 3203. Nursing Care of the Adult I. (6) Prerequisites: Level I courses. Corequisite: NURS 3200. Development of selected competencies for nursing care management of adult clients with predictable human responses to specific system alterations. Risk reduction, recovery and rehabilitation of clients with selected diseaseprocesses are addressed within the ethic of caring. Selected settings are utilized for clinical practice. *(Fall, Spring)*

NURS 3251. Advanced Professional Roles and Issues. (3) Prerequisite: Level II courses. Exploration of societal and professional trends and issues affecting nursing and health care. Leadership strategies within the profession and practice of nursing. Principles and implementation strategies of health care management within organizational systems. *(Spring)*

NURS 3252. Community Health Nursing. (6) (WX) Prerequisites: Level II courses. Development of competencies for the nursing care management of culturally diverse individuals, families, and populations within communities with emphasis on the nurse's role in health promotion and maintenance. Particular focus on risk identification and reduction throughout the life span. Multiple community-based agencies are utilized. Access to a working automobile is required for each clinical day. *(Fall, Spring)*

NURS 3253. Nursing Care of the Adult II. (6) Prerequisites: Level II courses. Focus on selected competencies for designing comprehensive nursing care management of adult clients with complex and unpredictable human responses to specific system alterations. Selected settings are utilized for clinical practice. *(Fall, Spring)*

NURS 3254. Mental Health Nursing. (6) Prerequisites: Level II courses. Development of competencies necessary for the practice of mental health nursing with emphasis on the use of self in relationships with clients and health team members. The nurse-client relationship provides the framework for exploring the factors impacting the behavior of clients. Selected settings are utilized for clinical practice. *(Fall, Spring)*

NURS 3895. Independent Study in Nursing. (1-4) Prerequisite: permission of the instructor. Directed individual study in a selected aspect of nursing which is explored in greater depth than included in the planned curriculum. May be repeated for additional credit as focus of the study varies. No more than six hours in NURS 3895 and/or 4090 may be counted toward degree requirements. *(On demand)*

NURS 4090. Topics in Nursing. (1-3) Prerequisite: permission of the instructor. Critical examination of selected current topics in nursing. *(Fall, Spring)*

NURN 4170. Information Technology: Applications in Health Care. (3) Prerequisite: Upper-division standing or permission of instructor. A study of the use of computers and information technology in health care. Emphasis is placed on development of the knowledge and competencies necessary for selective use of evaluation of informatics, computer technology and data management in health care. *(Summer, Fall)*

NURS 4191. Women's Health Issues. (3) Prerequisite: WMST 1101 or permission of the instructor. Exploration of contemporary issues in women's health from the feminist and women's health movement perspectives. (Same as WMST 4191.) *(Fall)*

NURN 4251. Issues In Nursing Leadership. (3) Prerequisite: NURN 3100. Analysis of professional nursing practice in relation to current trends and issues in health care delivery systems. *(Fall, Spring)*

NURN 4400. Professional Nursing Practicum/Seminar. (6) Prerequisites: NURN 3100, NURS 3113 and 3200 or permission of instructor. Clinical practicum incorporating theory-based practice in a variety of settings with clients who have multiple health care needs. Emphases are on clinical judgement and decision-making, diagnostic reasoning, clinical ethics, collaboration and case management. Examination of nursing therapeutics within the structure of nursing process and nursing diagnosis. *(Fall, Spring)*

OPERATIONS MANAGEMENT (OPER)

OPER 3000. Topics in Operations Management. (3) Prerequisite: OPER 3100. Topics from the areas of Operations Management. The course may be repeated for credit. (*On demand*)

OPER 3100. Operations Management. (3) Prerequisites: MATH 1120, STAT 1220, ACCT 2121, 2122; ECON 2101, 2102; INFO 2130; junior standing. Introduction to and development of the management functions in manufacturing and non-manufacturing organizations. A systems approach to the organizational environment, the basic operating functions, the problems and decisions a manager encounters and solution techniques and models. Computer application are included where appropriate. (*Fall, Spring, Summer) (Evenings*)

OPER 3200. Quantitative Analysis in Business. (3) Quantitative business research methods, information sources, and introduction to management decision making. Either OPER 3200 or a satisfactory performance on a proficiency examination on its content must be fulfilled by all MBA students as part of the preparatory component. (Cannot be taken for credit toward any undergraduate degree within the Belk College of Business Administration.) (Formerly MBAD 6100.) *(Fall, Spring)*

OPER 3201. Advanced Operations Management. (3) Prerequisite: OPER 3100. Cases and/or management simulations enable the student to apply the knowledge attained in Operations Management. The student, through an application forum, should develop in greater depth his/her understanding of the operating functions of an organization. (*Fall*)

OPER 3203. Management Science. (3) Prerequisite: OPER 3100. Analytical approach to understanding the management process and solving management problems with emphasis on existing models and developing insights for problem development and model building. (*Spring*)

OPER 3204. Management of Service Operations. (3) Prerequisites: OPER 3100. Solving problems and directing employees in service organizations. Topics include location, design, layout, queuing, capacity, scheduling, routing, change, management and quality control. (*Spring*)

OPER 3206. Managing for Quality. (3) Prerequisites: OPER 3100. A study of management philosophy, practices and analytical processes implemented in quality planning and administration of products and services. Topics include corporate culture, quality design, human factors and motivation, quality cost analyses and auditing, service quality, quality assurance, quality circles, and conformance to design. (*Fall*)

OPER 3500. Cooperative Education Experience. (O) Prerequisite: major in Management Information Systems or Operations Management. Enrollment in this course is required for the Department's cooperative education students during each semester they are working in a co-op position. Course evaluation is Satisfactory/Unsatisfactory. (*Fall, Spring, Summer*)

OPER 3800. Directed Study. (1-6) Prerequisites: consent of the Department and junior standing. Enrollment granted only by permission of the faculty with whom the work will be performed. The student's work assignments will be designed by the student and faculty member who will oversee the project of study. The credit hours will be determined prior to enrollment and will be based on the particular project undertaken. (*On demand*)

OPERATIONS RESEARCH (OPRS)

All OPRS/MATH/STAT courses offered by the Department of Mathematics are approved to satisfy requirements for the Problem Solving Goal of UNC Charlotte Education.

OPRS 3111. Operations Research: Deterministic Models. (3) Prerequisites: MATH 1242 and 2164. Linear, integer and dynamic programming, the simplex method, networks, PERT and CPM techniques, game theory, and applications. *(On demand)*

OPRS 3113. Operations Research: Probabilistic Models. (3) Prerequisite: MATH 1242, 2164, and STAT 2122 or MATH/STAT 3122, or consent of the Department. Queueing models, inventory models, simulation, markov chains, decision analysis, game theory and probabilistic dynamic programming. *(On demand)*

OPRS 4010. Topics in Decision Mathematics. (2-3) Prerequisite: consent of the Department. Topics in decision mathematics selected to supplement regular course offerings in this area of mathematics. May be repeated for additional credit with the approval of the Department. Credit for the M.A. degree in Mathematics requires approval of the Department. *(On demand)*

OPRS 4113. Game Theory. (3) Prerequisites: OPRS 3111 and one of STAT 2122, MATH/STAT 3122, or OPRS 3113. The theory of zero-sum matrix games, mini-max theorem, optimal strategies, symmetric games, economic models, infinite, separable, polynomial, multi-stage, general-sum and n-person games. A project will be required of all graduate students. *(On demand)*

OPRS 4114. Dynamic Programming. (3) Prerequisites: ITCS 1100 or 1201 and its lab, OPRS 3111, and one of STAT 2122, MATH/STAT 3122 or OPRS 3113. The identification of dynamic programming problems and their solution in terms of recurrence relations. Elementary path problems, resource allocation, shortest path, traveling salesmen problem, discrete-time optimal control, replacement models, and inventory systems. A project will be required of all graduate students. *(On demand)*

PHILOSOPHY (PHIL)

PHIL 1105. Critical Thinking. (3) Fundamental skills of clear thinking and critical assessment of typical messages by and between persons in everyday situations. Application of logical methods to advertisements, editorials, political speeches and textbooks to distinguish effective from ineffective forms of reasoning. (*Fall, Spring, Summer*)

PHIL 2101. Introduction to Philosophy. (3) (L) Basic concepts and problems of philosophy such as freedom and determinism, mind-body interaction, the status of moral judgments, and the nature of knowledge. Readings from the works of representative philosophers both classical and contemporary. (*Fall, Spring, Summer) (Evenings*)

PHIL 2105. Deductive Logic. (3) (P) Principles of deductive logic, both classical and symbolic, with emphasis on the use of formal logic in analysis of ordinary language discourse. (*Fall, Spring, Summer) (Evenings*)

PHIL 2165. Introduction to Political Philosophy. (3) (V) Survey course which includes an introduction to recognized major political thinkers such as Plato, Aristotle, Hobbes, Locke, Rousseau, and Marx. Included are other politically influential writers such as Confucius, Mary Wollstonecraft, and Martin Luther King. (Same as POLS 1170) *(Fall, Spring)*

PHIL 2175. Professional Ethics. (3) (V) Basic concepts, principles and cases in ethics for the professions, including a reasoning model for ethical decisions, basic principles and codes of professional ethics, and actual case scenarios from the professions. *(Yearly)*

Prerequisites for upper-level courses. While PHIL 2101 is not a prerequisite for courses at the 3000 level and above, students who have taken PHIL 2101 typically benefit more from upper-level philosophy courses than students who have not.

PHIL 3050. Topics. (3) Prerequisite: consent of the Department. Topics chosen from specific areas in philosophy such as freedom and determinism, imagination, detailed study of significant philosophical movements or works. May be repeated for additional credit with the approval of the Department. (*On demand*)

PHIL 3060. Major Figure in Philosophy. (3) Prerequisite: consent of the Department. An investigation into the thoughts and writings of a major figure in philosophy with special emphasis on primary sources. Included may be Plato, Aristotle, Descartes, Kant, Heidegger, and others as indicated by departmental needs and interests. May be repeated for additional credit. (*On demand*)

PHIL 3201. Meaning of Death. (3) Death in the western tradition. Philosophical, religious, existential, psychological and literary readings clarifying conceptual problems in our ways of speaking about death. Understanding death as a horizon for understanding life. (Same as RELS 3201.) (*On demand*)

PHIL 3205. Philosophy In and Of Literature. (3) (A) Relationship between philosophy and literature with special emphasis on the nature of literature as it presents concepts and evaluations. Readings will be in the theory of literature as well as in contemporary novels, plays and short stories for both their philosophical and their aesthetic properties. (*On demand*)

PHIL 3207. Narrative Philosophy. (3) (W,O) Prerequisites: Declared Philosophy major or minor; at least junior standing or permission of the instructor. Explores the use of autobiographical and personal writing in philosophy. *(Alternate years)*

PHIL 3211. Ancient Philosophy. (3) Western intellectual and philosophic thought from the early Greeks to the post-Aristotelian period. Readings from the pre-Socratics, Plato, Aristotle, Epicureans, Stoics, Skeptics and Neoplatonists. (*Fall*)

PHIL 3212. Medieval Philosophy. (3) Western philosophical tradition from Augustine to William of Ockham. Readings include such other authors as Anselm of Canterbury, Bonaventure, Thomas Aquinas and Duns Scotus. (*On demand*)

PHIL 3213. Modern Philosophy from Descartes to Kant. (3) Modern philosophic and scientific thought. Readings selected from representative works in the 17th to the 19th centuries. (*Spring*)

PHIL 3214. Contemporary Philosophy. (3) Main problems of contemporary philosophy; pragmatism, logical positivism, linguistic analysis, existentialism. (*On demand*)

PHIL 3217. American Philosophy. (3) European philosophic movements with counterparts in American thought, leading to distinctly American pragmatism, realism and humanism. Readings from 19th- and 20th-century philosophers. (*On demand*)

PHIL 3219. History of Ethical Theory. (3) (V) Study of major ethical theories in western philosophical tradition: Plato, Aristotle, Kant, Butler, and Mill. Examination of the fundamental approaches to ethics in the western philosophical tradition and of the historical connections among these fundamental theories. Historical connections include the earlier insights and arguments accepted by later thinkers and the development of concepts from earlier theories to later ones. *(Alternate years)*

PHIL 3221. Ethics. (3) (V,O) A study of the nature and foundations of moral judgment, the principles and criteria for sound moral decisions, and the application of these to contemporary moral issues. Discussion includes such specific problems as: abortion, capital punishment, privacy, war, and sexual morality. (*On demand*)

PHIL 3223. Existentialism. (3) (A) Existentialist tradition in philosophy and literature including such issues as: authenticity, absurdity and the meaning of life, freedom and morality, anguish, death, and atheism. (*On demand*)

PHIL 3225. Aesthetics. (3) (A) Major theories of art, including readings from Aristotle, Kant, Nietzsche, Collingwood, Dewey, Langer and Beardsley. Emphasis on expression, criticism, the work of art, and the creative process. (*Spring*)

PHIL 3226. Social and Political Philosophy. (3) (C) Philosophical concepts involved in understanding and evaluating the basic structure of societies (e.g., economic, educational, legal, motivational and political) including equality, fraternity, freedom and rights. Relevance to

contemporary social and political issues stressed. Readings from classical and contemporary sources. (Same as POLS 3177.) Taught by Philosophy Department. (*On demand*)

PHIL 3227. Feminist Philosophy. (3) Views of contemporary feminist and female philosophers on traditional philosophical issues such as ethics, human nature, the construction of knowledge, modes of social and political organization, the relationship between the mind and the body, and the nature of God. (Same as WMST 3247.) *(Alternate years)*

PHIL 3228. Healthcare Ethics. (3) (W) (V) Major ethical dilemmas within medical science and biology are examined to assist students to identify, analyze, and decide ethical issues in such a way that they can defend their positions to themselves and others. Issues include reproductive and genetic technology, death and dying, patient rights, and justice in distribution of healthcare benefits and burdens. *(Yearly)*

PHIL 3231. Business Ethics. (3) (V) Ethical problems confronting business as a social institution and individuals in business. Application of ethical theory to business institutions and practices, internal exchanges of business (e.g., hiring, promotions, working conditions, employer/employee rights and duties) and external exchanges (e.g., product safety, environment, depletion, marketing, advertising.) (*Spring*)

PHIL 3235. Advanced Logic. (3) Advanced systems of logic, with emphasis upon symbolic logic and formal systematic characteristics such as axiomatics and proof techniques. (*On demand*)

PHIL 3241. Philosophy of Education. (3) Exploration of classic Western approaches to education and the contemporary moral problems faced by America's schools. Issues to be considered are the effect of race, class, and gender on school culture and teacher preparation. *(Alternate years)*

PHIL 3242. Philosophy of Religion. (3) Philosophical implications of religious experience including the definitions, development and diverse forms of the problems of belief and reason in modern thought. (Same as RELS 3242.) (*On demand*)

PHIL 3243. Philosophy of Peace. (3) (L) Examination of the nature of peace in relation to the history of war and theory of justice. Relationship between individual, local, state and global values and to the status of the nuclear arms race in the post-cold war world. (Same as HONR 1701) *(Fall)*

PHIL 3244. Philosophy of Body. (3) Opportunity to explore physically as well as mentally the implications of the eastern and western philosophical literature on what the body means to individuals and societies. Philosophical readings about the body's relationship to the mind, politics, happiness, social interaction and education will be explored through lecture, discussion, writing and the daily practice of hatha yoga and other physical activities. *(Summer)*

PHIL 3245. Philosophy of Mind. (3) Conceptual issues in the mind/body problem and the problem of other minds. Analysis of concepts of intention, motivation, consciousness, imagination and emotion. *(On demand)*

PHIL 3247. Philosophy of Science. (3) Epistemological, methodological, metaphysical, interdisciplinary and meta-disciplinary issues arising out of science with "science" construed very broadly to imply a strong connection with all systematic inquiry, either past or present, into natural or social questions. (*On demand*)

PHIL 3249. Philosophy of Technology. (3) Examination of basic concepts and controversies concerning technology, science, values, and the nature of both ethical and practical judgments. Influence of technology on attitudes toward the environment and self will be combined with more recent concerns such as the siting of hazardous waste dumps and the impact of computer technology on daily lives. Normative and analytic approach is taken toward such issues as hazard assessment, risk management, and decision strategies on democratic control and intelligent use of technical innovation in ways that advance public welfare. *(Alternate years)*

PHIL 3265. Theory of Knowledge. (3) A study of various theories on the nature, foundations and limits of knowledge. Analysis of the notions of knowledge and belief, evidence and the sources of knowledge. Discussion of the principles and criteria for distinguishing knowledge from opinion or belief. Readings from both classical and contemporary sources. (*On demand*)

PHIL 3275. Metaphysics. (3) Inquiry into the most fundamental and comprehensive structures and categories of reality, especially in relation to persons as knowers and agents. Discussion of such topics as: being, existence and truth; substance, essence and accident; universals and individuals; mind, soul, matter and God. (*On demand*)

PHIL 3791. Honors Thesis I. (2) Prerequisite: consent of the Department. Individual or group inquiry into selected philosophic problems. Exposition and discussion of the results. *(Fall, Spring)*

PHIL 3792. Honors Thesis II. (2) Prerequisite: consent of the Department. A continuation of PHIL 3791 focused on the preparation and presentation of an Honors thesis. *(Fall, Spring)*

PHIL 3851. Practicum in Philosophy. (1-3) Prerequisite: consent of the Department. Directed individual study involving the student and instructor in rethinking and reworking some major problems in the teaching of undergraduate philosophy including interaction with a particular class, usually PHIL 1105, 2101 or 2105, in the preparation, presentation and evaluation of the course. (Not for teacher licensure.) (*On demand*)

PHIL 3853. Research Methods and Publication. (3) Permission of the instructor required. Individual instruction in current methods of research in philosophy through participation in major faculty research project. *(On demand)*

PHIL 3859. Independent Study. (1-3) Prerequisite: consent of the Department. Directed individual study of a

philosophical issue of special interest to the student. May be repeated for additional credit as the topics vary and with departmental approval. No more than six hours may apply toward the major in Philosophy. (*On demand*)

PHIL 4050. Topics in Philosophy. (3) (3G) Prerequisite: consent of the Department. Extra work is required of students receiving graduate credit. Selected problems and issues in philosophy. May be repeated for additional credit as topics vary. (*On demand*)

PHYSICS (PHYS)

PHYS 1101. Introductory Physics I. (3) (S) Corequisite: PHYS 1101L. Introduction to the fundamental principles of natural phenomena. Topics will be selected from traditional classical subjects (e.g., Newtonian mechanics, electromagnetism) and more recent developments (e.g. nuclear physics, quantum physics) in order to illustrate the logical structure of modern science. (*Fall, Spring, Summer*)

PHYS 1101L. Introductory Physics I Laboratory. (1) (S) Corequisite: PHYS 1101. Laboratory investigations illustrating experimental techniques and fundamental principles of natural phenomena. Three laboratory hours each week. (*Fall, Spring, Summer*)

PHYS 1102. Introductory Physics II. (3) (S) Corequisite: PHYS 1102L; Prerequisite: PHYS 1101. A continuation of PHYS 1101. (*Fall, Spring, Summer*)

PHYS 1102L. Introductory Physics II Laboratory. (1) (S) Corequisite: PHYS 1102; Prerequisite: PHYS 1101L. A continuation of PHYS 1101L. Three laboratory hours each week. (*Fall, Spring, Summer*)

PHYS 1130. Introduction to Astronomy. (3) (S) Historical beginnings of astronomy. Motions of celestial bodies. Introduction to space science. The solar system. Optical and radio astronomy. Structure and evolution of stars. Galaxies, cosmology. Three lecture hours each week. (*Fall, Spring, Summer*)

PHYS 1130L. Introduction to Astronomy Laboratory. (1) (S) Prerequisite or corequisite: PHYS 1130. Experimental investigations relating to the acquisition of and interpretation of astronomical data. One three-hour laboratory each week. (*Fall, Spring) (Evenings)*

PHYS 2101. Physics for Science and Engineering I. (3) (S) Prerequisite: MATH 1241. Corequisite: PHYS 2101L, MATH 1242. First semester of a two semester calculus-based introductory sequence in general physics with topics selected from kinematics and dynamics of particles, momentum, work, energy, conservation laws, mechanics of rigid bodies, heat, thermodynamics, fluids, electricity and magnetism, wave motion and sound, geometrical and physical optics. Three lecture hours and one recitation hour each week. *(Fall, Spring, Summer) (Evenings)*

PHYS 2101L. Laboratory I. (1) (S) Corequisite: PHYS 2101. Experiments selected from mechanics, heat, electricity and magnetism, wave motion and optics. Use of the computer for organizing, graphing and analyzing data. Two laboratory hours each week. *(Fall, Spring, Summer) (Evenings)*

PHYS 2102. Physics for Science and Engineering II. (3) (S) Prerequisite: PHYS 2101 with a grade of C or better, and MATH 1242. Continuation of PHYS 2101. Three lecture hours and one recitation hour each week. *(Fall, Spring, Summer) (Evenings)*

PHYS 2102L. Laboratory II. (S) (1) Prerequisite: PHYS 2101L. Corequisite: PHYS 2102. Continuation of PHYS 2101L. Two laboratory hours each week. *(Fall, Spring, Summer) (Evenings)*

PHYS 2181. Electronics and Microcomputer Interfacing. (4) Prerequisites: PHYS 2102 and 2102L (or PHYS 1102) with a grade of C or better, and MATH 1242. Study of analog and digital electronics and microcomputer interfacing, including logic gates, counters, decoders, flip-flops, latches, memories, operational amplifiers, analog-to-digital and digital-to-analog converters, IEEE-488, RS-232C and current loop interfaces, interrupts, BASIC programming, and microcomputer input-output techniques. Six lecture/laboratory hours per week. *(Spring)*

PHYS 3000. Topics in Physics. (1-4) (S) Prerequisite: consent of Department. Special topics which are introductory in nature. May not be applied toward the degree requirements for "additional hours at the 3000/4000 level" without approval of the departmental Undergraduate Studies Committee. May be repeated. (*On demand*)

PHYS 3101. Topics and Methods of General Physics. (4) (S) Prerequisites: For physics majors, PHYS 2102 or 1102 with a grade of C or better, and MATH 1242; Others: consent of the instructor Exercises and problems to further explore topics in PHYS 2101 and 2102 with emphasis on understanding of physical concepts and developing computer methods of exploration and solution using Mathematics and Excel. *(Spring)*

PHYS 3121. Classical Mechanics I. (3) Prerequisites: PHYS 3101 (or ECGR 3121 or MEGR 2142) with a grade of C or better, and MATH 2171. Corequisite: MATH 2241. First course of a two-semester sequence treating particle dynamics, the motion of systems of particles, rigid body motion, moving coordinate systems. Lagrange's equations, Hamilton's equations and small oscillations. *(Fall)*

PHYS 3141. Introduction to Modern Physics. (3) Prerequisite: PHYS 2102 (or PHYS 1102) with a grade of C or better, MATH 1241. Corequisite: MATH 1242. Special relativity, kinetic theory, quantization of charge, light, and energy, the nuclear atom, electron waves, molecular and solid state physics, statistical physics, and an introduction to the physics of atoms. *(Fall)*

PHYS 3151. Thermal Physics. (3) Prerequisites: PHYS 3141 with a grade of C or better, CHEM 1251 and 1251L, MATH 2241. An introduction to heat, thermodynamics, kenetic theory, and statistical physics. Topics include classical thermodynamics, classical and quantum theory of specific heats, Maxwell-Boltzmann, Fermi-Dirac and Bose-Einstein distributions. Three lecture hours a week. *(Spring) (Alternate years)*

PHYS 3281. Advanced Laboratory in Waves and Optics. (2) Prerequisites: PHYS 2102 and 2102L (or PHYS 1102) with a grade of C or better, and MATH 1242. Selected laboratory work in physical optics. Areas of study include properties of light sources and detectors; interferometry; fiber optics; optical retardation; and dispersion. Emphasis on the development of sound laboratory techniques, methods of data analysis, and the writing of formal laboratory reports. Three hours of laboratory each week. *(Fall)*

PHYS 3282. Advanced Laboratory in Modern Physics. (2) (W,O) Prerequisites: PHYS 3141 with a grade of C or better, ENGL 2116. Selected laboratory work in areas such as atomic spectra, radioactive decay, and the interaction of radiation with matter. Emphasis on development of sound laboratory techniques, methods of data analysis, oral communication of results, and the writing of formal laboratory reports. Three hours of laboratory each week. *(Spring)*

PHYS 3283. Advanced Laboratory in Classical Physics. (2) (W) Prerequisite: PHYS 3101 with a grade of C or better, ENGL 2116. Selected laboratory work in areas such as mechanics, electricity and magnetism, acoustics, and thermal physics. Topics are chosen for their relation to important principles and techniques, or for their historical significance. Emphasis on development of sound laboratory techniques, methods of data analysis, and the writing of formal laboratory reports. Three hours of laboratory each week. *(Fall)*

PHYS 3400. Internship in Community Education and Service. (3) Prerequisites: junior standing, acceptance into the internship program and approval by the Physics Department. A project oriented, service-learning internship with cooperating community organizations. Does not count as credit toward departmental requirements in physics. May be repeated once with permission of the Department. This course is offered on a *Pass/No Credit basis. (On demand)*

PHYS 3590. Physics Cooperative Work Experience. (O) Prerequisites: junior standing and consent of Department. Registration in PHYS 3590 is required of Co-Op students during each of the semesters they are working. *(Fall, Spring, Summer)*

PHYS 3900. Senior Project. (2-3) Prerequisites: senior standing and consent of the faculty member overseeing the project; PHYS 3282 and 3283. Independent investigation under the supervision of faculty member on a project that is approved by the departmental Undergraduate Studies Committee. *(On demand)*

PHYS 4000. Selected Topics in Physics. (1-4) Prerequisite: consent of Department. Advanced special topics. May not be applied toward the degree requirements for "additional hours at the 3000/4000 level" without approval of the departmental Undergraduate Studies Committee. May be repeated. *(On demand)*

PHYS 4140. Nuclear Physics. (3) Prerequisites: PHYS 3141 with a grade of C or better, and MATH 2171. A study of the nucleus, radioactivity, nuclear reactions, fission, fusion, interactions of radiation with matter and measurement of radiation. *(Spring) (Alternate years)*

PHYS 4181. Solid State and Semiconductor Physics Laboratory. (3) Prerequisite: PHYS 4241 or MEGR 3131 or consent of instructor. Laboratory in solid state physics and semiconductor device physics, including electrical and photoconductivity; fluorescence, photoluminescence and Raman Scattering; semiconductor device characteristics; superconductivity; and the Hall Effect. Six laboratory hours each week. *(On demand)*

PHYS 4210. Theoretical Physics. (3) Prerequisite: consent of Department. Topics include: Matrices, power series, solutions to ordinary and partial differential equations. Hilbert space, Fourier integrals, boundary value problems, Green's functions, and complex analysis. *(Fall)*

PHYS 4231. Electromagnetic Theory I. (3) Prerequisites: For physics majors, PHYS 3121 with a grade of C or better; Others: consent of the instructor; MATH 2171, MATH 2241. Corequisite: MATH 2242. *(Spring)*

PHYS 4232. Electromagnetic Theory II. (3) Prerequisites: PHYS 4231 with a grade of C or better. *(Fall)*

PHYS 4241. Modern Physics I. (3) Prerequisites: For physics majors, PHYS 3141 with a grade of C or better; Others: consent of the instructor; MATH 2241 and 2171. The first semester of a two semester sequence providing a senior-level treatment of physical systems at the level of atoms. Topics selected from: relativity, quantum phenomena, ionic and covalent bonding in molecules, electrical, thermal, and magnetic properties of solids, Mazwellian and Boltzmann distributions, solutions of the one-dimensional Schrodinger wave equation, the hydrogen atom and spin, the helium atom, atomic and molecular spectra. *(Fall)*

PHYS 4242. Modern Physics II. (3) Prerequisite: PHYS 4241. A continuation of PHYS 4241. *(Spring)*

PHYS 4271. Waves and Optics. (3) Prerequisites: PHYS 2102 with a grade of C or better, senior standing, and MATH 2171. Exceptions by consent of the instructor. Topics include the mathematics of wave motion, light as an example of an electromagnetic wave, the superposition of periodic and non-periodic waves, and selected topics from geometrical and physical optics. *(Fall)*

PHYS 4281. Advanced Laboratory in Modern Optics. (3) Prerequisite: PHYS 4271 or consent of the instructor. Laboratory in modern optics. Characteristics of light sources and detectors; interferometry; fiber optics and fiber optics sensors; holography; heterodyned optical signals. Emphasizing sound techniques, methods of data analysis, and written laboratory reports. Credit cannot be obtained for both PHYS 3281 and PHYS 4281. Six hours each week. *(Fall)*

PHYS 4800. Investigations. (1-2) Prerequisite: junior standing. An independent investigation on a topic approved by the Department Undergraduate Studies Committee. May be repeated for up to four hours credit. No more than two credit hours may be applied toward the degree requirements for "additional hours at the 3000/4000 level." *(On demand)*

POLITICAL SCIENCE (POLS)

Course offerings, including introductory courses, are divided into the following major subfields: American Politics and Public Administration, Comparative Politics and Area Studies, International Politics, Political Philosophy, Research and Practice, and Internship and Independent Study.

American Politics and Public Administration

POLS 1110. Introduction to American Politics. (3) (C) Role of the President, Congress, Supreme Court, and national administrative agencies in the American political system. Relationship between the American people and their political institutions with emphasis on political culture, the electoral process, political parties, interest groups, and political communication. (*Fall, Spring, Summer*)

POLS 2120. Introduction to Public Policy. (3) Provides an overview of the policy process in the U.S. focusing on how public problems arise, how they get on the agenda of government, how and why the government responds or fails to respond, defining public policy, explaining how it is made, and who makes it. *(Yearly)*

POLS 3010. Topics in American Politics or Public Administration. (1-4) An intensive study of a topic in American politics or public administration. The particular topic investigated may vary from semester to semester, and a student may take more than one course under this number. (*On demand*)

POLS 3102. Federal Interpretation of the First Amendment. (3) Prerequisites: at least junior standing or consent of the instructor. In-depth case analysis of tests determining Constitutional boundaries of expression, including clear and present danger, prior restraints, fighting words/symbolic speech, strict scrutiny, obscenity, and indecency. (Cross listed with COMM 4102.) *(On demand)*

POLS 3103. Public Opinion. (3) A study of attitude and opinion measurement with emphasis on the techniques of survey research and public opinion polling and conservative and liberal tendencies in American public opinion and society. *(Yearly)*

POLS 3104. Mass Media. (3) An examination of the relationship of mass media to politics and government. Government regulation of the media and how the mass media shape political information and behavior. *(On demand)*

POLS 3105. Voting and Elections. (3) Psychological, sociological, and political variables that influence voting behavior and that affect electoral stability and change with emphasis on studies derived from survey research. *(Yearly)*

POLS 3108. Social Movements and Interest Groups. (3) Analysis of the nature of social movements and interest groups and their role in the American political system. Emphasis on membership recruitment and mobilization, campaigns, lobbying, and influence on parties, public opinion, and public policy. Evaluation of the extent to which these organizations enhance the voices of ordinary citizens versus those of corporations and citizens of high social status. *(On demand)*

POLS 3109. Political Parties. (3) Analysis of the role of political parties in the American political system. Emphasis on party organizations, nominations, campaigns, interrelation with interest groups and social movements, and the role of parties in the executive, legislative, and judicial arenas. *(On demand)*

POLS 3110. North Carolina Student Legislature. (3) (W,O) Prerequisite: permission of instructor. Practicum including workshops, seminars, and guest speakers on legislative process and research, parliamentary procedure, and resolution and bill drafting; participation in an interim council debate at one of the member campuses for one weekend each month during the semester and participation in the NCSL annual session in Raleigh. May be repeated for credit. (*Spring*)

POLS 3111. The Congress. (3) Analysis of the role of the Congress in the American political system and its relationships with the other branches of government. Recruitment and socialization of congressmen, the committee system, and roll call analysis. *(Yearly)*

POLS 3112. The Presidency. (3) Analysis of the role of the Presidency in the American political system and its relationships with the other branches of government. Strategies of presidential nomination and election, the sources and indicators of presidential power, and how those who have held the office have shaped it and been shaped by it. *(Yearly)*

POLS 3114. Constitutional Law. (3) Development of American Constitutionalism (especially federalism and the separation of powers) with a major emphasis on the role of the U.S. Supreme Court in national policy making. *(Yearly)*

POLS 3115. Civil Rights and Liberties. (3) (V) Utilizes public policy analysis to illuminate judicial decisions and opinions relating to contemporary civil rights and liberties. *(Yearly)*

POLS 3116. Judicial Process. (3) Introduction to the nature and functions of law; survey of Supreme Court decision making. *(Yearly)*

POLS 3119. State Politics. (3) The politics of state governments in the U.S. using a comparative approach to analyze differences in their formal governmental structures, political climates, and the processes by which public policies are adopted. *(Yearly)*

POLS 3121. Urban Politics. (3) Analysis of the political processes in the nation's metropolitan areas and the adjustments and responses of the U.S. governmental system to cope with the urban area. *(Yearly)*

POLS 3124. U.S. Domestic Policy. (3) Examination of the processes of and influences on policy making, including goals and objectives of current U.S. domestic policy. Focus on major policy areas; may include such topics as fiscal and monetary policy, education, transportation, management of national economy, and agriculture, among others. *(Yearly)*

POLS 3125. Health Care Policy. (3) An overview of the development and current functioning of U. S. health care

system and public policies regarding the organization, delivery and financing of health care at the federal, state, and local levels. *(Yearly)*

POLS 3126. Administrative Behavior. (3) The role of the administrator and public bureaucracy in modern democratic society, with emphasis on the interplay of forces created by executives, legislators, political parties, and interest groups. *(Yearly)*

POLS 3128. Politics and Film. (3) (A) Examination of the influence and role of film in American politics. Movies provide important cues about cultures, values, and society, and affect how people perceive or view their environment. Explores and analyzes the images and messages conveyed about American politics, and develops understanding of the role of film in American politics. Requires viewing films in class, discussion, and writing about the films. *(On demand)*

Comparative Politics and Area Studies

POLS 1130. Introduction to Comparative Politics. (3) (X) Political comparison among nations, diverse geographical emphases, including Latin America, Europe, Asia and Africa. (*Fall, Spring, Summer*)

POLS 3030. Topics in Comparative Politics or Area Studies. (1-4) An intensive study of a topic in comparative politics or area studies. The particular topic investigated may vary from semester to semester, and a student may take more than one course under this number. (*On demand*)

POLS 3131. Political Development. (3) Comparative study of how and why political systems change, with particular emphasis on the politics and political economy of countries in the Third World. (*On demand*)

POLS 3132. Comparative Public Policy. (3) Examination of the policy process and policy outcomes in the United States and other countries. Analyzes policy areas in depth to determine the role that variations in policy culture and political institutions play in shaping policy choices. Examines the possibility and limitations of transferring policy innovation from one polity to another. *(On demand)*

POLS 3135. Political Violence. (3) Designed to address four questions: (1) What is political violence? (2) Why does it occur? (3) What is its relationship to other political processes? (4) What is its impact on society? Examines manifestations of violent political behavior such as pathological violence, conspiratorial violence, collective violence, and government violence. *(Yearly)*

POLS 3137. Political Corruption. (3) (V) The use of public office for private ends in comparative and historical perspective. Examples are drawn from the Third World, Western Europe, socialist systems, and the local, state, and national levels in the U.S. *(Yearly)*

POLS 3141. European Politics. (3) Comparative analysis of selected European governments including Great Britain, France, Germany, and Italy. *(Yearly)*

POLS 3143. African Politics. (3) A comparative perspective on politics in sub-Saharan Africa and on the performance of post-independence political systems there in terms of national and international integration, economic challenges, and efforts to create stable and democratic civilian regimes. *(Yearly)*

POLS 3144. Latin American Politics (3) Comparative overview of political and socio-economic change in Latin America from the colonial period to the present. Primary emphasis on Latin American politics in the twentieth century, competing political ideologies, socio-economic issues, international political economy, and internal political change. *(On demand)*

POLS 3148. Chinese Politics. (3) The origins, development, and maintenance of the Chinese political system. The organization and function of the Chinese Communist Party (CCP) and other political groups. The impact of tradition on contemporary Chinese politics. *(Yearly)*

POLS 3149. Japanese Politics. (3) Political behavior and development of political institutions in Japan. Emphasis on nature of political change and political process--political socialization, political culture, party systems, interest groups and public policy formation. Cross-national comparison with non-Asian democratic systems. *(Yearly)*

International Politics

POLS 1150. Introduction to International Politics. (3) (X) Analysis of politics among nations: material and psychological sources of national power; the role of law, force and diplomacy in world politics; problems of peace and disarmament; and international organization. (*Fall, Spring, Summer*)

POLS 3050. Topics in International Politics. (1-4) An intensive study of a topic in international politics. The particular topic investigated may vary from semester to semester, and a student may take more than one course under this number. (*On demand*)

POLS 3151. International Political Economy. (3) An analysis of the political dynamics of economic relationships among countries. Attention is focused on the political aspects of monetary, trade, and investment relationships, and the difficulties involved in coordinating policy and maintaining effective international management. *(Yearly)*

POLS 3152. International Organizations. (3) An analysis of the development and functions of formal and informal organizations that govern international politics and markets, including the United Nations system, economic and non-governmental organizations, and regional institutions. *(Yearly)*

POLS 3153. European Union. (3) An analysis of the European Union (EU) from historical, political, and economic perspectives. Emphasis on the institution's actors (especially states and interest groups) and policies of the EU as well as the changing relationship between the EU and its major trading partners such as the U.S.. *(Yearly)*

POLS 3154. Cyberspace and Politics. (3) Examination of the advent of information technologies and digital communication in the global community and the impact of

these changes on multi-level politics--international, regional, national, and sub-national. Four major themes are: exploration of the digital world, cyberspace governance and public policy, electronic government and virtual citizenship, and cyberspace expansion and global reach. Taught mainly as a web-based course. *(Yearly)*

POLS 3157. American Foreign Policy. (3) A survey of the key issues affecting the conduct of U.S. foreign policy with attention to the formulation and implementation of foreign policy decisions with particular reference to some of the more critical foreign policy issue areas. *(Yearly)*

POLS 3161. Defense and Security Policy. (3) Review of constitutional provisions for national security and defense policy in the US, overview of democratic environments as they relate to defense and national security. Analysis of "security" as it was defined in "Cold War" terms and of trends and conditions of international conflict and political change. Particular attention to the impact of the demise of the Soviet Union and the restructuring of Eastern Europe. Impact of global security issues on national security and defense decisions. *(Yearly)*

POLS 3162. International Law. (3) Historical and political analysis of the sources and development of international law. Particular attention is given to the role of modern international law in the relations of nation-states and its application to contemporary global problems. *(Yearly)*

POLS 3163. Model United Nations. (3) (W,O) Prerequisite: permission of instructor. Preparation for and participation in the Model United Nations (simulation of the United Nations). Includes study of the background of country to be represented; the history, structure and procedures of the United Nations; drafting of resolutions and position papers; and public speaking and caucusing. May be repeated for credit. (*Spring*)

POLS 3164. U.S.-Latin American Relations. (3) Addresses the always-complicated and often-conflictive relationship between Latin American and the United States. Particular attention to critical contemporary issues such as the drug trade, immigration, international trade, humanitarian aid and U.S. policy toward Cuba. *(On demand)*

POLS 3165. East Asia in World Affairs. (3) Examines the political factors governing diplomatic relations, national order, economic trade, and national security in East Asia. Emphasis on China, Taiwan, Hong Kong, Japan, the Korean peninsula, and the Philippines. *(Yearly)*

POLS 3167. U.S. and Japan. (3) A survey of the key elements affecting the structure and direction of U.S. relations with Japan. Emphasis on the major issues affecting the relationship and the efforts to resolve conflicts and maintain patterns of cooperation. *(Yearly)*

POLS 3169. Foreign Policy of African States. (3) Prerequisite: any upper-division course on Africa. A theoretical approach to the study of external and internal factors influencing the development, implementation, and conduct of foreign policy of African states. (Cross-listed with AAAS 4105.) (*Spring*)

Political Philosophy

POLS 1170. Introduction to Political Philosophy. (3) (V) Survey course that includes an introduction to recognized major political thinkers such as Plato, Aristotle, Hobbes, Locke, Rousseau, and Marx. Included are other politically influential writers such as Confucius, Mary Wollstonecraft, and Martin Luther King. (Cross-listed with PHIL 2165.) *(Fall, Spring)*

POLS 3070. Topics in Political Philosophy. (3) (V) Analysis of a selected problem in contemporary political philosophy or in the history of political philosophy. Includes moral and ethical evaluation of political and social practices and institutions. Readings from classic texts or contemporary works. Topic for consideration changes from semester to semester. Course may be repeated with permission of instructor. (*On demand*)

POLS 3171. History of Classical Political Philosophy. (V) (3) Major concepts and systems of political philosophy of Ancient Greece and Rome. *(Fall)*

POLS 3172. African-American Political Philosophy. (3) Prerequisite: 3000 level course on Africa from AAAS, HIST, or POLS. Major competing ideologies in African-American political philosophy. Cross-listed with AAAS 3179. *(On demand)*

POLS 3173. History of Modern Political Philosophy. (3) (V) Major concepts and systems of western political philosophy from the 16th-19th century. *(Spring)*

POLS 3174. Democracy. (3) (V) Study of the justifications and criticisms of various philosophies about the nature of democracy and comparison of these ideas to democratic practice based on historical and contemporary sources. *(On demand)*

POLS 3175. Law, Justice, and Morality. (3) (V) Introduction to ethics with a focus on such contemporary ethical issues as abortion, suicide and euthanasia, capital punishment, and war and terrorism. *(Fall, Spring)*

POLS 3177. Social and Political Philosophy. (3) (C) Philosophical concepts involved in understanding and evaluating the basic structure of societies (e.g., economic, educational, legal, motivational, and political) including equality, fraternity, freedom, and rights. Relevance to contemporary social and political issues stressed. Readings from classical and contemporary sources. Cross-listed with PHIL 3226. (*On demand*)

Research and Practice of Political Science

POLS 2000. Oral Political Communication. (1) (O) Prerequisites: POLS 1110, 1130, and 1150, and a course in Political Philosophy. Development of skill in oral communication of political concepts by means of giving and evaluating oral presentations of a political nature for a variety of purposes to a variety of kinds of audiences. All grading based on the student's oral presentation. *(Fall, Spring)*

POLS 4220. Research Methods in Political Science. (4) (W) Prerequisites: junior standing; POLS 1110, POLS 1130, POLS 1150, and STAT 1222. An introduction to research methods in political science to include a brief consideration of the following topics: philosophy of science; the place of research methods in the discipline of political science; research design; research strategies and techniques; data interpretation. Three lecture hours and a one-hour laboratory period per week. (*Fall, Spring*)

POLS 4990. Senior Thesis. (3) (W) Prerequisite: POLS 4220. The student completes an article-length research paper under the supervision of a member of the faculty. The paper must involve quantitative or other methods of modern political analysis. (*Fall, Spring, Summer)*

Internship and Independent Study

POLS 4400. Internship in Political Science. (3-6) Practical experience in politics by working for a party, campaign organization, political office holder, news medium, government agency, or other political organization. Minimum of 150 working hours for three hours credit; minimum of 300 working hours for six hours credit. No more than six credits may be received through this course. *Pass/No Credit* grading only. (*Fall, Spring, Summer*)

POLS 4800. Independent Study. (1-3) Prerequisite: consent of the instructor. Supervised investigation of a political problem that is (1) of special interest to the student; (2) within the area of the instructor's special competence; and (3) normally an extension of previous coursework with the instructor. A student may take more than one course under this number but not more than three hours a semester. (*Fall, Spring, Summer*)

PORTUGUESE (PORT)

PORT 1201. Elementary Portuguese I. (4) Fundamentals of the Portuguese language, including speaking, listening comprehension, reading, and writing. (*Fall*)

PORT 1202. Elementary Portuguese II. (4) Prerequisite: PORT 1201 or permission of the Department. Fundamentals of the Portuguese language, including speaking, listening comprehension, reading, and writing. (*Spring*)

PORT 2201. Intermediate Portuguese I. (4) Prerequisite: PORT 1202 or permission of the Department. Review of grammar, with conversation and composition. (*On demand*)

PORT 2202. Intermediate Portuguese II. (4) Prerequisite: PORT 2201 or permission of the Department. Continued review of grammar, conversation, and composition. (*On demand*)

PSYCHOLOGY (PSYC)

PSYC 1101. General Psychology. (3) (S, C) A survey of the field including such topics as learning, emotions, motivation, personality, psychological testing, and abnormal behavior. Emphasis on psychology as a behavioral science. May be taken with or without the lab. All psychology majors and those who wish to apply this course as partial fulfillment of the University science and technology (GOAL IV) requirement must take PSYC 1101L during the same semester in which they take PSYC 1101. (*Fall, Spring, Summer) (Evenings*)

PSYC 1101L. General Psychology Laboratory. (1) (S) An introduction to laboratory equipment and procedures. Meets two hours per week. (May not be taken apart from the lecture portion of PSYC 1101 except by permission of the Department.) (*Fall, Spring, Summer) (Evenings*)

PSYC 2102. Research Methodology. (4) (W) Prerequisites: PSYC 1101 and 1101L, and STAT 1222. Experimental, observational, and correlational methods of psychological research. Basic concepts of philosophy of science will also be discussed. Emphasis on methodology rather than content and applicability of methods to current topics in psychology. Three lecture hours and one two-hour laboratory period a week. (*Fall, Spring*)

PSYC 2109. Educational Psychology. (3) Prerequisite: PSYC 1101. The psychology of learning, human development, assessment, and other domains applicable to formal educational settings. *(Yearly)*

PSYC 2112. Introduction to Behavior Modification. (4) Prerequisite: PSYC 1101. Methods and constructs of behavior modification, including the application of the methods to laboratory research. Three lecture hours and one two-hour laboratory period a week. (*On Demand*)

PSYC 2120. Child Psychology. (3) (C) Prerequisite: PSYC 1101. Psychological development in infancy and childhood, including such topics as biological change, learning, thought, language, social relations, intelligence, and morality. (*Fall, Spring, Summer*)

PSYC 2121. Adolescent Psychology. (3) Prerequisite: PSYC 1101. Developmental and psychological characteristics of adolescents, with emphasis on the developmental transitions, social contexts, and problems of adolescence. (Yearly)

PSYC 2124. Psychology of Adult Development and Aging. (3) (C) Psychological development through adulthood and old age. Emphasis on processes underlying continuity and change in adulthood, including personality and socialization, cognitive development, and the psychophysiology of aging. (Same as GRNT 2124) (Yearly)

PSYC 2150. Psychology of Adjustment. (3) Prerequisite: PSYC 1101. The study of the process of adjustment and factors that may influence adaptation. Consideration is given to psychological reactions to critical problems encountered in modern life. Introduction to different approaches to intervention and treatment. (*Fall, Spring, Summer*)

PSYC 2160. Introduction to Health Psychology. (3) Prerequisite: PSYC 1101. An introduction to the contributions of the discipline of psychology to the promotion and maintenance of health, the prevention and treatment of illness, and the improvement of the health care system. Topics include the role of stress and physiological factors in illness, chronic pain disorders and pain

management, lifestyle and psychosocial influences on health, and the influence of illness of interpersonal relationships. *(Fall)*

PSYC 2171. Introduction to Industrial/Organizational Psychology. (3) The study of people at work; what motivates people to work and what leads to satisfaction, alienation, or performance; how to lead others; the structure of an organization and processes of communication, decision making, and conflict; socialization through selection and training; measurement of individual contributions; the design of work itself; ways to change; and develop entire organizations. *(Fall, Spring)*

PSYC 3001. Topics in Psychology. (3) Prerequisite: consent of the instructor. Examination of special psychological topics. May be repeated for credit as topics vary.

PSYC 3103. History and Systems of Psychology. (3) Prerequisite: PSYC 1101. Historical antecedents and origins of modern psychology. Emphasis on influential psychological systems such as behaviorism and psychoanalysis. *(Fall, Spring, Summer)*

PSYC 3110. Comparative Psychology. (3) Prerequisite: PSYC 1101. Animal and human behavior from a comparative point of view. Includes the study of methodology, and classification of behavior patterns, as well as the origin of these patterns. *(Yearly)*

PSYC 3111. Psychology of Learning. (3) Prerequisite: PSYC 1101. (Completion of PSYC 2102 is strongly recommended.) Major theories and empirical findings in the area of learning. *(Yearly)*

PSYC 3113. Physiological Psychology. (3) Prerequisite: PSYC 1101. The relationship of physiological systems to integrated behavior and an introduction to brain-behavior relationships. Emphasis on neural regulation of behavior. *(Fall, Spring, Summer)*

PSYC 3114. Motivation. (3) Prerequisite: PSYC 1101. Current theories and research in the area of motivation. Consideration is given to the role of emotion in human motives. *(Fall, Spring)*

PSYC 3115. Sensation and Perception. (3) Prerequisite: PSYC 1101. An introduction to the sensory and perceptual processes that provide the means to experience and make sense of the physical world in which we live. Topics include discussions of how sensory data are acquired, processed, and interpreted. *(Yearly)*

PSYC 3116. Human Cognitive Processes. (3) (C) Prerequisite: PSYC 1101. Processes involved in such complex human behaviors as language (acquisition and usage), memory, and problem solving, with emphasis upon experimental findings and current theories. *(Fall, Spring)*

PSYC 3117. Hereditary Behavior. (3) Prerequisite: PSYC 1101. Genetic and environmental contributions to behavior and psychological processes. History of the nature-nurture issue in psychology; animal and human research methods; statistical analysis of behavior-genetic data; and the heritability of learning ability, intelligence, personality, and psychopathology. *(Yearly)*

PSYC 3118. Research Methods in Physiological Psychology. (4) Prerequisites: PSYC 1101 and permission of the instructor. Current laboratory techniques in physiological psychology, including basic surgeries, lesioning, stimulation, recording, and histology. Three lecture hours and one two-hour laboratory period a week. *(On demand)*

PSYC 3122. Cognitive and Language Development. (3) Prerequisites: PSYC 1101 and 2120. Theory and research on the development of thought and language in children, including such topics as theories of cognitive development, the development of perception, representation of knowledge, memory, language, and problem solving. *(Alternate years)*

PSYC 3123. Social and Personality Development. (3) Prerequisites: PSYC 1101 and 2120. Social and personality development of children, including such topics as infant social behavior, socialization practices, independence and achievement, aggression, sex-role development, and moral development. *(Alternate years)*

PSYC 3125. Older Worker and Retirement. (3) (W) Prerequisite: consent of the instructor. Physical characteristics, personal attitudes, and structural factors affecting the employment of persons over 40. Topics include biological aging, myths and stereotypes about older workers, public policies, human resources practices, economics of retirement, and theories about career and life stages. *(Alternate years)*

PSYC 3126. Psychology of Women (3). Prerequisite: PSYC 1101. Application of research in developmental, experimental, and clinical psychology to issues regarding women and gender. Includes such topics as gender-role development, gender differences in cognitive abilities and performance, psychological perspectives on women's physical and mental health, and violence toward women. (Same as WMST 3226) *(Alternate years)*

PSYC 3130. Social Psychology. (3) (C) Prerequisite: PSYC 1101. The social behavior of individuals. Topics include interpersonal attraction and relationship development; attitude change; social conflict; social interaction; social perception; and social influence processes; general theories of social behavior; and research approaches. *(Yearly)*

PSYC 3135. Psychology of Personality. (3) (C) Prerequisite: PSYC 1101. Current personality theories. Consideration given to psychoanalytic, physiological, trait and factor, the perceptual viewpoints in the light of contemporary research. *(Fall, Spring, Summer)*

PSYC 3140. Basic Processes in Psychological Assessment. (3) Prerequisites: PSYC 1101 and 1101L, and STAT 1222; PSYC 2102 recommended. Psychological testing, including scaling procedures, reliability and validity, correlational techniques used in test construction, a review of various kinds of psychological tests, and basic approaches to test interpretation. *(Yearly)*

PSYC 3151. Abnormal Psychology. (3) (C) Prerequisite: PSYC 1101. A history of psychopathology. Case studies,

differential diagnosis, psychological dynamics of abnormal behavior, including theoretical, clinical, and experimental contributions in the field. (*Fall, Spring, Summer*)

PSYC 3152. Child Psychopathology. (3) Prerequisites: PSYC 1101, 2120 and 3151. Principles of classification, assessment and treatment of children and adolescents who display deviant affective, cognitive, and social behavior. (*Alternate years*)

PSYC 3155. Community Psychology. (3) Social forces, particularly within the context of organizations and/or communities, that affect the development of psychopathology and/or personal competency, with emphasis on preventing psychopathology and increasing competency. Topics include the concept of prevention; assessment of organizations, communities, and other environments; methods of instituting organizational and community change; evaluating the effects of community interventions; social policy analysis; and ethical issues involved in community work. (*Alternate years*)

PSYC 3172. Psychology of Personnel: Employee Selection and Classification. (3) Prerequisite: PSYC 2171 or consent of instructor. Methods, techniques, and procedures used to select and classify employees. (*Fall*)

PSYC 3173. Psychological Bases of Training Programs. (3) Prerequisites: PSYC 1101 and 2171, or consent of instructor. Application of alternative theories about adult learning to the development and conduct of training programs in industry. Topics include how to develop training needs, a description of methods available to trainers such as programmed instruction and sensitivity training, and how to evaluate the effects of various training techniques. (*Spring*)

PSYC 3174. Organizational Psychology. (3) Prerequisite: PSYC 2171. Application of psychological principles to group and organizational levels of analysis, with emphasis on work teams and business organizations. Topics include group dynamics, teams and empowerment, organizational culture and diversity, and organization development and change. *(Spring and Some Summers)*

PSYC 3216. Introduction to Cognitive Science (3) Prerequisite: Permission of the Department. Interdisciplinary introduction to the science of the mind. Broad coverage of such topics as philosophy of mind; human memory processes; reasoning and problem solving; artificial intelligence; language processing (human and machine); neural structures and processes; and vision. (Same as ITCS 3216) *(Spring, Alternate Years)*

PSYC 3313. Neuropsychology. (3) Prerequisite: PSYC 3113 or equivalent. Brain function and behavior, especially in individuals believed to be brain damaged (e.g., by stroke, Alzheimer's, or head injury); general principles of brain function and of human neuropsychology, including higher functions (e.g., memory and language); and neuropsychological assessment. *(Yearly)*

PSYC 3316. Cognitive Neuroscience. (3) Prerequisite: PSYC 3113 or 3116 or equivalent. Biological basis of consciousness and the neurobiology of mental processes by which we perceive, act, learn, and remember; representation of mental processes from electrophysiological and brain imaging techniques, clinical neurology, and computational science. *(Yearly)*

PSYC 3405. Practicum in Applied Psychology. (1-4) Prerequisites: junior standing, permission of the instructor, and the Psychology Department. Work in practical settings related to psychology under the supervision of a faculty member. May be repeated for credit with departmental permission. The student must have obtained approval in the semester preceding the semester in which the practicum is to be taken. Offered only on a *Pass/No Credit* basis. (*Fall, Spring*)

PSYC 3613. Seminar in Physiological Psychology (3) (W,O)

PSYC 3619. Seminar in Experimental Psychology (3) (W,O)

PSYC 3625. Seminar in Developmental Psychology (3) (W,O)

PSYC 3630. Seminar in Social Psychology (3) (W,O)

PSYC 3650. Seminar in Human Adaptation and Behavior (3) (O)

PSYC 3660. Seminar in Health Psychology (3) (W,O)

PSYC 3790. Honors Thesis I. (3) Prerequisite: Permission of instructor. Initiation of independent Honors research, including the preparation and defense of a formal thesis proposal. *(Fall, Spring)*

PSYC 3791. Honors Thesis II. (3) Prerequisite: PSYC 3790. Completion of independent Honors research, including the preparation and defense of a formal Honors thesis. *(Fall, Spring)*

PSYC 3806. Individual Studies in Psychology. (1-4) Prerequisites: permission of the instructor and the Department. Directed individual study that may take the form of initiating, designing and conducting an original research problem, or a critique and synthesis of existing research. May be repeated for credit. The student must have obtained approval in the semester preceding the semester in which the course is to be taken. (*Fall, Spring, Summer*)

PSYC 4006. Selected Topics in Psychology. (3) Prerequisite: junior or senior standing. Examination of special psychological topics. (*On demand*)

PSYC 4140. Tests and Measurements. (3) Prerequisite: PSYC 1101. Psychological and educational measurements in current use with emphasis on structure, administration and application of group tests. Individual tests such as Stanford-Binet, WISC and WAIS will be reviewed. (*On demand*)

PSYC 4152. Psychology of Exceptional Children. (3) Assessing and treating the exceptional child. Emphasis on current research in several diagnostic categories, including the emotionally disturbed, learning disabled, mentally retarded, physically handicapped and gifted. *(On demand)*

PSYC 4153. Psychology of Mental Retardation. (3) Psychological aspects of mental retardation in relation to adjustment and educational development. Emphasis on current research and intervention strategies. *(On demand)*

PSYC 4612. Seminar in Behavior Modification. (3) Prerequisites: PSYC 2102, 2112 and 3112. Current issues in behavior modification, including an integration of principles, techniques and practical experiences. Emphasizes development of written and oral communication skills. (*On demand*)

PSYC 4613. Seminar in Physiological Psychology. (3) (W,O) Prerequisites: PSYC 2102, and permission of the instructor. PSYC 3113 or equivalent recommended. Intensive study of selected topics in physiological psychology, such as psychopharmacology, biofeedback and self-regulation, and sleeping and waking. Emphasizes development of written and oral communication skills. (*Yearly*)

PSYC 4619. Seminar in Experimental Psychology. (3) (W,O) Prerequisites: PSYC 2102, and permission of the instructor. In-depth examination of an area of current concern in the psychological laboratory. Each semester will have a different focus such as discrimination, learning, memory, experimental analysis of behavior and attention. Emphasizes development of written and oral communication skills. (*Yearly*)

PSYC 4625. Seminar in Developmental Psychology. (3) (W,O) Prerequisites: PSYC 2102, permission of the instructor, and either 2120, 2121, or 2124. Concentrated examination of selected current issues and research in a field of developmental psychology. Emphasizes development of written and oral communication skills. (*Yearly*)

PSYC 4630. Seminar in Social Psychology. (3) (W,O) Prerequisites: PSYC 2102, 3130, and permission of the instructor. Intensive study at the advanced level of topics of current research and theoretical interest in social psychology. Emphasizes development of written and oral communication skills. (*Yearly*)

PSYC 4650. Seminar in Human Adaptation and Behavior. (3) (W,O) Prerequisites: PSYC 2102, and permission of the instructor. Intensive reading and discussion in selected areas of psychology, such as stress, personality, emotions and psychopathology. Emphasizes development of written and oral communication skills. (*Yearly*)

PSYC 4655. Seminar in Community Psychology. (3) (W,O) Prerequisites: PSYC 2102, 2150, 3151, and permission of the instructor. Application of psychological research findings to specific problems in the community with emphasis on problems hypothesized directly to affect psychological well-being. Emphasizes development of written and oral communication skills. (*Yearly*)

PSYC 4660. Seminar in Health Psychology. (3) (W,O) Prerequisite: PSYC 2102, and permission of the instructor. Detailed examination of issues relevant to health and behavior. Readings and discussion of health-related concepts and controversies current in the professional literature. Emphasizes development of written and oral communication skills. *(Yearly)*

PSYC 4670. Seminar in Industrial Psychology. (3) (W,O) Prerequisites: PSYC 2102, 2171, and permission of instructor. Topics of current concern in industrial/organizational psychology and related disciplines including issues that affect individuals at work and organizations in society. Emphasizes development of written and oral communication skills. (*Yearly*)

READING (READ)

READ 3224. Teaching Reading to Primary Level Learners. (3) Research, theory, and instructional practice related to the reading process and reading instruction in the elementary school with a focus on assessment of emergent reading behaviors; language development and reading; phonics and phonemic awareness; balanced literacy; and meeting the needs of diverse learners. Includes an extensive field-based component. *(Fall, Spring)*

READ 3225. Teaching Reading to Elementary School Learners. (3) (W) Prerequisite: Admission to Teacher Education. Research, theory, and instructional practices related to the reading process and reading instruction in the elementary school; relationship between language development and reading; examination of instructional materials, including literature, basal readers, and informational texts; and field-based application of course content. (*Fall, Spring*)

READ 3226. Teaching Reading to Intermediate Grade Learners. (3) Research, theory, and instructional practice related to integrating the communication processes with all subject areas, vocabulary, comprehension, study skills, authentic, assessment-based instruction, addressing the needs of diverse and struggling readers. Includes an extensive, field-based component. *(Fall, Spring)*

READ 3255. Integrating Reading and Writing Across Content Areas. (3) (W) Prerequisite: Admission to Teacher Education. Theories, research, and instructional methods, associated with reading and writing in the content areas of the middle and secondary school curriculum. Field-based application of course content. (*Fall, Spring*)

RELIGIOUS STUDIES (RELS)

RELS 1101. An Introduction to Religious Studies. (3) (L,V,W) An introduction to the study of the religious dimensions of human existence. (*Fall, Spring, Summer) (Evenings*)

RELS 1110. The Long Search. (3) (V, X) A survey of the major religions of the world based on the film series *The Long Search*. (*On demand*)

RELS 1120. The Bible and its Interpreters. (3) (L) An introduction to the history of biblical interpretation from the pre-canonical era to the present. *(Yearly)*

RELS 1201. Religion Without Patriarchy: An Introduction. (3) (W,V,C) Survey of the origins and effects of patriarchy on religions, cultures, and societies; and exploration of non-patriarchal religious traditions, beliefs, customs and values, and their applications. *(On demand)*

RELS 2000. Topics in Religious Studies. (1-3) Credit hours vary with topics. Special topics in Religious Studies. May be repeated for credit as topics vary. *(On demand)*

RELS 2101. Introduction to Western Religious Thought. (3) (W,L,V) The major religions, myths, symbols, ideas, and traditions that have informed the fundamental ways people in the West have seen themselves in the world. (*Fall, Spring*)

RELS 2102. Introduction to Asian Religions. (3) (L, X) Selected religions of Asia such as Islam, Hinduism, Buddhism, and Chinese and Japanese religions. Special emphasis on their world views as expressed in the functional use of myth and symbol in the tradition. (*Fall, Spring, Summer*)

RELS 2104. Hebrew Scriptures/Old Testament. (3) (V,L) The Hebrew religious tradition from the perspective of its development in the culture of the ancient Near East. (*Yearly*)

RELS 2105. New Testament and Christian Origins. (3) (VL) Emergence of Christianity in its cultural context. Analysis of selected early Christian writings in English translation. (*Fall, Spring*)

RELS 2107. Judaism and Christianity. (3) Examination of theological, philosophical, cultural, and practical similarities and differences between Judaism and Christianity, with an emphasis on their respective interpretations of one another. *(Alternate years)*

RELS 2108. Religion in American Culture. (3) (C) The role of religion in the shaping of American culture. (*Fall, Spring*)

RELS 2600. Orientation to the Major. (3) Prerequisite: consent of the instructor. An introduction to the critical issues and methods of the academic study of religion in the University. *(Fall, Spring)*

RELS 3000. Topics in Religious Studies. (3) Treatment of a special topic in religious studies. May be repeated for credit as topics vary. (*On demand*)

RELS 3101. Greek Myths and Religions. (3) (W,L) The gods and goddesses, heroes and heroines in ancient Greek myths and religions; Greek myth and later Western religions; polytheism and monotheism; functions of myth; and contemporary interpretations of Greek myth. (*Yearly)*

RELS 3104. Prophecy and Prophetic Literature in Ancient Israel. (3) Prerequisite: RELS 2104 or consent of the instructor. An examination of the phenomenon of prophecy in the religion of ancient Israel, with particular attention devoted to the writings about and writings attributed to named prophets in the Hebrew Bible. *(On demand)*

RELS 3107. The Psalms and Wisdom Literature of Israel. (3) Prerequisite: RELS 2104 or consent of the instructor. The origin and content of the Psalms and the place of wisdom literature in the development of Hebrew thought. *(On demand)*

RELS 3110. Judaism. (3) The development of Jewish religious thought from antiquity to the present. (*Yearly)*

RELS 3111. Women in Judaism. (3) (X,V) A survey of the roles and activities in Jewish women throughout Jewish history, as it is portrayed in a diverse sampling of Jewish religious literature and practice. (Same as WMST 3111) *(Alternate years)*

RELS 3113. Jesus. (3) Prerequisite: RELS 2105 or consent of the instructor. Jesus and the religion he taught from the point of view of the synoptic gospels. (*Alternate years*)

RELS 3116. Paul. (3) Prerequisite: RELS 2105 or consent of the instructor. The writings of St. Paul. The occasion, purpose and significance of each letter for the emerging Christian community. (*Alternate years*)

RELS 3119. Christianity through Art and Architecture. (3) Christian history from the catacombs to the 20th century. Focus on religious expression in pictorial art, architecture, and sculpture. (*On demand*)

RELS 3122. Esoteric Traditions. (3) The study of one or more particular expressions of religious esotericism (e.g., Jewish Kabbalah; Hindu Tantra; etc.). May be repeated for credit when the subject matter changes. *(On demand)*

RELS 3125. Medieval Christianity. (3) Christianity in the context of the culture of the High Middle Ages (1050-1350 C.E.). (*On demand*)

RELS 3131. Islam. (3) The development of the traditions in Islam with emphasis on Islamic culture, literature, and mysticism. (*Yearly*)

RELS 3134. Studies in Western Religious Thought. (3) Selected works of major religious authors in the West. (*On demand*)

RELS 3135. Religion in Nineteenth-Century America. (3) Examination of religious thought, practices, and movements in 19th-century America. (*On demand*)

RELS 3137. Contemporary African-American Religions. (3) African-American religion since World War II. Emphasis on the influence of religion and religious leaders in the struggle for a Black humanity. (*Alternate years*)

RELS 3150. The Black Church/Civil Rights Movement. (3) (V, X) Role of the black church in the struggle for human equality. Topics such as radical, moderate, and accommodationist leadership styles; historical development of the black church in the South; and its emergence as a foundation for modern civil rights movement. (Same as AAAS 3150). (*Fall*)

RELS 3154. Hinduism. (3) The ancient Vedic traditions and the development of Hinduism. Emphasis is on the role of Hinduism in Indian civilization. (*Alternate years*)

RELS 3157. Buddhism. (3) The historical development of Buddhism with special attention given to its diverse manifestations in South Asia. (*On demand*)

RELS 3163. The Religious Art and Architecture of India. (3) (A, X) The visual art of Hindus, Buddhists, Jainas, and Muslims in the architecture, paintings, and sculptures of India. (*Yearly*)

RELS 3166. Taoism. (3) Philosophical Taoism as nature mysticism. Comparison with nature mystics in the West. (*Alternate years*)

RELS 3169. Zen Buddhism. (3) Prerequisite: RELS 2102 or consent of the instructor. Buddhist origins in India, development of the Ch'an (Zen) school in China and Japan, and emphasis on the formative influences of Zen on Japanese art and culture. (*Alternate years*)

RELS 3172. Religion in Asian Literature. (3) Religious ideas and themes in the literature of Asia. Examples chosen from such literary forms as the novel, the short story, autobiography, drama, and poetry. *(On demand)*

RELS 3201. The Meaning of Death. (3) An investigation into the experience of death in the Western tradition. Philosophical, religious, existential, psychological, and literary readings clarifying the conceptual problems in our ways of speaking about death. Understanding death as a horizon for understanding life. (Same as PHIL 3201.) (*On demand*)

RELS 3202. The Limits of Language. (3) What it means to be a linguistic creature living in a symbolic world. (*On demand*)

RELS 3209. Quest in Literature. (3) (W,L) The spiritual dimension of contemporary and traditional literature. Focus may be on an artist, genre (novel, poetry, drama), or theme. *(On demand)*

RELS 3212. Films and Identity. (3) (W, A) Themes of religious identity, alienation, search, discovery, sexuality and death as reflected in recent American movies and foreign films. Film laboratory required. (*On demand*)

RELS 3224. Science, Technology and Human Vision. (3) The relationship of science and religion, the place of the individual in a technological society, and the visions of the scientific future. *(On demand)*

RELS 3230. Languages of Sacred Texts. (3) Prerequisite: consent of the instructor. The language and literature of a particular religious tradition. Aims at a level of proficiency to begin reading the sacred writings of a religion in the original language (Koine Greek, Biblical Hebrew, Classical Chinese, Sanskrit). May be repeated for credit when the subject matter changes. (Same as FORL 3050.) (*On demand*)

RELS 3232. Questions of Value. (3) (W,V) Prerequisite: sophomore standing or permission of the instructor. An examination of the pluralism of values, both historically and cross-culturally. A general consideration of certain assumptions about morality in selected periods and cultures. Each student chooses an ethical issue to investigate further in an historical or a cross-cultural context. *(Alternate years)*

RELS 3233. Sources of the Western Ethical Tradition. (3) (LV) Prerequisite: sophomore standing or permission of the instructor. An examination of selected Greek, Hebrew, Roman, and Christian texts as sources of the western ethical tradition. Consideration of these texts both in the context of their indigenous cultures and as they influence contemporary ethical action and reflection. *(Alternate years)*

RELS 3242. Philosophy of Religion. (3) Philosophical implications of religious experience, including the definitions, development, and diverse forms of the problems of belief and reason in modern thought. (Same as PHIL 3242.) (*On demand*)

RELS 3400. Applied Research/Field Work. (3) Prerequisite: major or minor in Religious Studies, 9 earned hours in religious studies, and permission of the instructor. Research and in-service training in business or community-based organizations. Specific content based on contract between student, supervising professor and cooperating organization. *(Approximately 120 contact hours for the semester) (On Demand)*

RELS 3450. Study Abroad for Religious Studies Majors. (3-6) Prerequisite: consent of the Department. The examination of an approved topic in the context of study abroad. *(On demand)*

RELS 3800. Independent Studies. (1-3) Prerequisite: consent of the instructor. May be repeated for credit. (*Fall, Spring*)

RELS 4000. Topics in Religious Studies. (3) Prerequisite: consent of the instructor. May be repeated for credit. *(On demand)*

RELS 4010. Major Figure in Religious Studies. (3) (W, L) The life and works of a major figure who has contributed to religious studies. May be repeated for credit for different figures. *(On demand)*

RELS 4101. Religion and Modern Thought. (3) The interaction of modern thought and modern religious sensibilities. (*Alternate years*)

RELS 4107. Early Judaism. (3) Prerequisite: RELS 2104 or 2105 or 3110 or consent of the instructor. Comparative historical and literary study of the varieties of Judaism evidenced during late antiquity (circa 70-640 C.E.), with special attention devoted to the information and development of rabbinic Judaism. *(On demand)*

RELS 4108. Medieval Judaism. (3) Prerequisite: RELS 2104 or 3110 or consent of the instructor. Comparative historical and literary study of the varieties of Judaism evidenced in Western Europe, the Byzantine Empire, and Islamicate realms from approximately 640 C.E. to approximately 1492 C.E. *(On demand)*

RELS 4109. Modern Judaism. (3) (V) Prerequisites: RELS 3110 or 4107 or 4108 or permission of the instructor. Historical and conceptual study of Judaism and Jewish experience in Europe, America, and Israel, from the 16th century to the present, with special attention paid to the development of denominations, Zionism, and the Holocaust. *(On demand)*

RELS 4110. Contemporary Jewish Thought. (3)(W,L,V) An examination of philosophy, religion, morality, politics, sociality, culture, family, and self-identity, in the light of modern and recent Jewish thought. *(Alternatae years)*

RELS 4201. Religion, Culture and Morality. (3) (W, X, V) Prerequisite: at least junior standing; one course in religious studies or ethics, or permission of the instructor. International/cross-cultural challenges and consequences of universal religious ethical systems versus religious relativism as the basis for moral theories and practices, including experiences and concerns of under-represented groups within religious moral systems. *(On demand)*

RELS 4215. The Artist as Visionary. (3) (W, A) The role of visual imagination in the development of religious sensibilities. *(On demand)*

RELS 4218. Jung and Religion. (3) (W,L) Prerequisites: junior, senior, or graduate standing. The works of C.G. Jung as they relate to an understanding of religion and religious experience. Emphasis on his interpretations of myths and symbols as they appear in both Western and non-Western religions. His theories of creativity and the arts, religious expressions, and quests for meaning. *(Yearly)*

RELS 4600. Senior Seminar. (3) (W,O) Required of majors in final year of studies. Others may be admitted with consent of the instructor. (*Fall*)

RUSSIAN (RUSS)

RUSS 1201. Elementary Russian I. (4) Fundamentals of the Russian language, including speaking, listening comprehension, reading, and writing. (*Fall*)

RUSS 1202. Elementary Russian II. (4) Prerequisite: RUSS 1201. Fundamentals of the Russian language, including speaking, listening comprehension, reading, and writing. (*Spring*)

RUSS 2201. Intermediate Russian I. (4) Prerequisite: RUSS 1202 or permission of the Department. Review of grammar, with conversation and composition based upon readings in Russian culture and civilization. (*On demand*)

RUSS 2202. Intermediate Russian II. (4) Prerequisite: RUSS 2201 or permission of the Department. Continuation of grammar, conversation and composition skills, based on readings in Russian literature. (*On demand*)

RUSS 3050 Masterpieces of Russian Literature.(3) Prerequisite: sophomore standing. Conducted in English. No knowledge of Russian required. May be repeated as topic changes. (*On demand*)

RUSS 3201. Advanced Russian Grammar, Composition, and Conversation I (3) Prerequisite: RUSS 2202 or permission of the Department. Intensive review of Russian grammar, plus mastery of new grammatical structures, while performing written and oral task-oriented activities. Acquisition of new vocabulary in a cultural context. *(Fall)*

RUSS 3202. Advanced Russian Grammar, Composition and Conversation II. (3) Prerequisite: RUSS 3201 or permission of the Department. Intensive practice of Russian grammar, speaking, and writing. Additional Russian civilization and culture as students improve their language skills. *(Spring)*

RUSS 3203. Russian Civilization and Culture. (3) Prerequisite: none. Conducted in English. No knowledge of Russian required. Geographical, historical, and artistic features of Russian culture, as well as aspects of life, thought, behavior, attitudes, and customs of the Russian-speaking people. Lectures, discussions, and viewing of films. (*On demand*)

RUSS 3800 Directed Individual Study. (1-4) Prerequisite: RUSS 3202 or permission of the Department. To be arranged with the instructor. May be repeated for credit. (*On demand*)

SECONDARY EDUCATION (SECD)

SECD 2140. The Adolescent Learner. (3) Characteristics of the adolescent learner, including the impact on the classroom of physical, social, cognitive, moral, vocational, and affective developmental factors and multicultural issues. Field-based activities include observation and tutoring in school and non-school settings; 15 hours of field experiences. *(Fall, Spring)*

SECD 3141. Secondary Schools. (3) Prerequisite: admission to Teacher Education. Overview of secondary education with emphasis on the foundational components and instructional programs appropriate for contemporary adolescents in American society. Includes 15 hours of field experiences. *(Fall, Spring)*

SECD 3142. Issues in Secondary Education. (2) Prerequisite: admission to Teacher Education. Corequisites: SPED 3290 and a content methods course. Integration of preservice education and academic concentration course work in a pre-student-teaching field experience. Students choose from sections of the course that focus on a contextual issue of particular interest while working in a setting where the issue exists. Students may take as many different Issues sections as their schedules permit. Includes 30 hours of field experiences. *(Fall, Spring)*

SECD 3441. Student Teaching/Seminar: 9-12 Secondary Science. (15) Prerequisite: completion of all coursework and approval of an Application to Student Teaching. A planned sequence of experiences in the student's area of specialization conducted in an approved secondary school setting under the supervision and coordination of a University supervisor and a cooperating teacher in which the student demonstrates the competencies identified for his/her specific teaching field in an appropriate grade-level setting. Approximately 35-40 hours per week in an assigned school

setting and 10-12 on-campus seminars scheduled throughout the semester. *(Fall, Spring)*

SECD 3442. Student Teaching/Seminar: 9-12 Secondary Mathematics. (15) Prerequisite: completion of all coursework and approval of an Application to Student Teaching. A planned sequence of experiences in the student's area of specialization conducted in an approved secondary school setting under the supervision and coordination of a University supervisor and a cooperating teacher in which the student demonstrates the competencies identified for his/her specific teaching field in a appropriate grade-level setting. Approximately 35-40 hours per week in an assigned school setting and 10-12 on-campus seminars scheduled throughout the semester. *(Fall, Spring)*

SECD 3443. Student Teaching/Seminar: 9-12 Secondary Social Studies. (15) Prerequisite: completion of all coursework and approval of an Application to Student Teaching. A planned sequence of experiences in the student's area of specialization conducted in an approved secondary school setting under the supervision and coordination of a University supervisor and a cooperating teacher in which the student demonstrates the competencies identified for his/her specific teaching field in an appropriate grade-level setting. Approximately 35-40 hours per week in an assigned school setting and 10-12 on-campus seminars scheduled throughout the semester. *(Fall, Spring)*

SECD 3444. Student Teaching/Seminar: 9-12 Secondary English. (15) Prerequisite: completion of all coursework and approval of an Application to Student Teaching. A planned sequence of experiences in the student's area of specialization conducted in an approved secondary school setting under the supervision and coordination of a University supervisor and a cooperating teacher in which the student demonstrates the competencies identified for his/her specific teaching field in an appropriate grade-level setting. Approximately 35-40 hours per week in an assigned school setting and 10-12 on-campus seminars scheduled throughout the semester. *(Fall, Spring)*

SECD 3800. Individual Study in Secondary Education. (1-6) Prerequisite: permission of the student's advisor. Independent study under the supervision of an appropriate faculty member. May be repeated for credit. *(Fall, Spring, Summer)*

SECD 4472. Secondary Education Clinical Experience. (3) Program of learning activities in the student's area of academic concentration in an approved school setting. *(On demand)*

SOCIOLOGY (SOCY)

SOCY 1101. Introduction to Sociology. (3) (V, C) The sociological perspective and process; fundamental concepts, principles, and procedures. *(Fall, Spring, Summer) (Evenings)*

SOCY 2090. Topics in Sociology. (1-3) Examination of specialized topics. May be repeated for credit as topics vary. *(On demand)*

SOCY 2112. Popular Culture. (3) (V, C) Analysis of popular forms of everyday life in America: fashions, fads, entertainment trends, advertising, television programming, music, myths, stereotypes, and icons of mass-mediated culture. *(Fall, Spring)*

SOCY 2132. Sociology of Marriage and the Family. (3) (V, C) Cross-cultural examination of family; socialization and sex roles; love, dating, and mate selection; communication; sexuality; power and decision making; parenthood; childlessness; conflict and violence; divorce, remarriage, and stepfamilies; alternate lifestyles; and future family. Not all sections are offered for "O" credit. *(Fall, Spring, Summer)*

SOCY 2163. Sociology of Gender. (3) Changing patterns of gender inequality; socialization and social structure as basis of gendered behavior, ideologies, and relationships. Alternative gender models and social movements as vehicles to diminishing gender inequality. *(On demand)*

SOCY 2171. Social Problems. (3) Contemporary social problems and consequences for American society. *(Fall, Spring, Summer) (Evenings)*

SOCY 3110. American Minority Groups. (3) Prerequisite: SOCY 1101. Relations between dominant and minority groups; the establishment, maintenance, and decline of dominance involving racial, ethnic, and religious minorities. *(Fall, Spring)*

SOCY 3132. Sociology of Sport. (3) Prerequisite: SOCY 1101 or consent of instructor. Dynamics and emergence of sport; reciprocal influence between sport and society; values, norms, and roles in sports. *(On demand)*

SOCY 3143. Social Movements. (3) Prerequisite: SOCY 1101. Analysis of collective behavior, ideology, development, and organizations of movements seeking or resisting change. *(Yearly)*

SOCY 3153. Evolution of Sociological Theory. (3) Prerequisite: SOCY 1101. Origins and evolution of fundamental sociological concepts and theories. *(Fall, Spring)*

SOCY 3161. Socialization and Society. (3) Prerequisite: SOCY 1101. Analysis and process of socialization, social interaction, and sociocultural dimension of personality. *(Yearly)*

SOCY 3173. Criminology. (3) Prerequisite: SOCY 1101. Nature and historical development of crime and political-economic organization of crime, criminal law, and theories of crime causation. *(Yearly)*

SOCY 3175. Crowds, Riots, and Disasters. (3) Prerequisite: SOCY 1101. Collective behavior in everyday life; crowds, rumors, fads, fashion; collective behavior that disrupts social order; riots and responses to disaster; response of individuals, organizations and communities to natural disasters, e.g., floods, hurricanes, tornadoes, and earthquakes. *(Yearly)*

SOCY 3261. Human Sexuality. (3) Prerequisite: SOCY 1101 or consent of instructor. Human sexuality research; teenage pregnancy; birth control; sex education; sexual fantasy; pornography; homosexuality and bisexuality; sexual communication; and heterosexual alternatives. (*Fall, Spring, Summer*)

SOCY 3895. Directed Individual Study. (1-4) Prerequisite: consent of the instructor. Supervised investigation of a sociological topic. May be repeated for credit; up to six hours may be applied to the major. (*Fall, Spring, Summer*)

SOCY 4090. Topics in Sociology. (1-3) Prerequisite: SOCY 1101. Examination of specialized sociological topics. Examples: Sociology of religion, Modern Japan. May be repeated for credit. *(On demand)*

SOCY 4110. Sociology of Aging. (3) Prerequisite: SOCY 1101 or consent of the instructor. Study of the changing characteristics, aspirations, and needs of older adults and their impact upon such institutions as the family, work, the economy, politics, education, and health care; emphasis on sociological theories of aging, contemporary research, and the analysis of specific aging policies and programs. (Same as GRNT 4110) *(Fall)*

SOCY 4111. Social Inequality. (3) Prerequisite: SOCY 1101. Distribution of power, privilege, and prestige; correlates and consequences of inequality; national and international comparisons. (*Yearly*)

SOCY 4112. Sociology of Work. (3) Prerequisite: SOCY 1101 or consent of instructor. The emergence of post-industrial society and technological change in the workplace; analysis of their impacts on organizations, workers, family, and community. (*Yearly*)

SOCY 4124. Sociology of the Community. (3) Prerequisite: SOCY 1101. Concepts and methods of community analysis of planned and unplanned community change. (*On demand*)

SOCY 4125. Urban Sociology. (3) Prerequisite: SOCY 1101 or consent of the instructor. Cross cultural analysis of urban development, social structure, ecology, demographic composition, and social problems. (*Yearly*)

SOCY 4130. Sociology of Health and Illness. (3) Prerequisite: SOCY 1101 or consent of instructor. The cultural and structural influences on the definition of health and illness; models of illness behaviors; health demography and epidemiology; social influences on the delivery of health care; ethical issues surrounding health and illness; and the development of relevant social policy. *(Yearly)*

SOCY 4131. Family Policy. (3) Prerequisite: SOCY 1101 or consent of instructor. Critical analysis of four aspects of family policy: the historical and cultural factors that have resulted in specific policies affecting the family; the specification of contemporary family policy at both the national and state level; the intended and actual application of existing family policy; and the implications and impact of policies as they are interpreted and implemented. *(On demand)*

SOCY 4134. Families and Aging. (3) Prerequisite: SOCY 1101 or consent of instructor. Theories explaining the formation and functioning of American families with emphasis on the impact of the aging of society. Examination of the current demographic trends and expectations of multigenerational families, as well as the future demands and modifications. *(On demand)*

SOCY 4135. Sociology of Education. (3) Prerequisite: SOCY 1101 or consent of the instructor. Educational institution; the school class as a social system; the school as a social environment and a complex organization. (*Yearly*)

SOCY 4150. Older Individual and Society. (3) Prerequisite: SOCY 1101 or consent of instructor. Review of the theories explaining the formation and functioning of American families with emphasis on the impact of the aging of society. Examination of the current demographic trends and expectations of multigenerational families, as well as the future demands and modifications. *(Yearly)*

SOCY 4154. Contemporary Social Theory. (3) Prerequisite: SOCY 3153 or consent of instructor. Elements and process of theory construction; contemporary social theories, such as theories of social order and causation, power, class structure, and inequality; group process theories; post-modern theories. (*On demand*)

SOCY 4155. Sociological Research Methods. (4) Prerequisite: SOCY 3153 or consent of instructor. Formulation of research problems; research designs; social measurement; sampling; collection, analysis, and interpretation of data. Three hours of lecture/discussion and completion of weekly laboratory units. (*Fall, Spring*)

SOCY 4156. Quantitative Analysis. (4) Prerequisites: SOCY 4155 or consent of instructor. Concepts and procedures of sociological analysis; data processing; measurement theory; and quantitative models of analysis. Three hours of lecture/discussion and completion of weekly laboratory units. (*Fall, Spring*)

SOCY 4165. Sociology of Women. (3) Prerequisite: SOCY 1101 or WMST 1101 and junior standing or consent of the instructor. Examines how the social world of women is influenced by their race, ethnicity, and class. Attention is given to changing roles of women in public and private spheres and to the role conflict that arises as women attempt to meet obligation in families, communities, and the workplace. The same as WMST 4165. *(Yearly)*

SOCY 4168. Sociology of Mental Health and Illness. (3) (W) Prerequisite: SOCY 1101 or consent of instructor. Mental health and illness in its social context; relationship between social structures and mental health/disorder. How social factors affect the definition and treatment of mental disorders; the effects of demographic variables on mental health and illness; the role of social support and stress; the organization, delivery and evaluation of mental health care services; and considerations of mental health care policy. *(On demand)*

SOCY 4172. Sociology of Deviant Behavior. (3) Prerequisite: SOCY 1101 or consent of instructor. Social definition of deviance; examination of the social processes

producing unusual, non-standard, and condemned behavior; and social responses to deviant behavior. (*Yearly*)

SOCY 4263. Sociology of Small Groups. (3) (O) Prerequisite: SOCY 1101 or consent of instructor. Systematic analysis and application of theoretical and empirical research pertaining to small groups. (*Yearly)*

SOCY 4480. Internship in Sociology. (3-6) Prerequisite: consent of the Department. Research and/or in-service training for selected students in cooperating community organizations. Specified content based upon a contract between student, department, and community organization. May be repeated for credit up to six semester hours. Offered only on a *Pass/No Credit basis*. *(Fall, Spring, Summer)*

SOCIAL WORK (SOWK)

SOWK 1101 . The Field of Social Work. (3) Historical development and philosophy of social work as a profession; personal and societal needs; methods and organizational arrangements; and roles and tasks of social workers. (*Fall, Spring*)

SOWK 2182. Human Behavior and the Social Environment I. (3) Prerequisite: BIOL 1110, SOCY 1101, and PSYC 1101. Prerequisite or corequisite: SOWK 1101. Transitional and developmental patterns of the individual. (*Fall*)

SOWK 2183. Human Behavior and the Social Environment II. (3) Prerequisite: SOWK 2182. Interaction between the individual, family, community, and larger social system; individual problem solving; delivery of social services; and impact of racism, sexism, poverty, ethnicity, and social class. (*Spring*)

SOWK 3090. Topics in Social Work. (1-3) Specialized topics in social work. May be repeated for credit as topics vary. (A listing and brief description of specific courses offered each term is available from the departmental office.) (*Fall, Spring*)

SOWK 3100. Social Work Research. (3) Prerequisite: SOWK 2182 and Goal II courses. Introduction to practice and program evaluation and other research methods and skills needed by a social worker. *(Fall, Spring)*

SOWK 3120. Diversity and Populations-at-Risk. (3) Prerequisite: SOWK 2183. Exposure to varied paradigms and perspectives relevant to understanding human needs. Content will emphasize human needs related to race and ethnicity, gender, poverty, sexual orientation, abilities/disabilities, and religious and spiritual diversity. *(Fall)*

SOWK 3181. Social Work Methods I. (3) Prerequisite: SOWK 2183. Overview of problem solving approach in general, and work with individuals in particular. (*Fall*)

SOWK 3182. Social Work Methods II. (3) Prerequisite: SOWK 3181. Work with families and groups. (*Spring*)

SOWK 3184. Social Work Methods III. (3) Prerequisite: SOWK 3181. Work with communities and organizations. (*Spring)*

SOWK 3201. Foundations of Social Welfare. (3) (W) Prerequisite: SOWK 2183 and POLS 1110. Foundations of social welfare; economic and social trends; and values and conflicts that influence social welfare programming. (*Fall*)

SOWK 3202. Social Welfare Policy. (3) Prerequisite: SOWK 3201. Nature and development of social welfare policy; implications of policy for program design and service delivery and role of the social worker in developing and implementing social welfare policies. (*Spring*)

SOWK 3482. Social Work Field Placement I. (6) Prerequisites: All other SOWK requirements. Corequisite: SOWK 3683. Directed field experience under professional supervision in selected community agencies. Offered only on a *Pass/No Credit basis*. (*Fall, Spring, Summer*)

SOWK 3484. Social Work Field Placement II. (6) Prerequisite: SOWK 3482. Corequisite: SOWK 3685. A continuation of SOWK 3482. Offered only on a *Pass/No Credit basis*. (*Fall, Spring, Summer*)

SOWK 3683. Social Work Field Placement Seminar I. (1) (O) Corequisite: SOWK 3482. Analysis and discussion of student field experience. (*Fall, Spring, Summer*)

SOWK 3685. Social Work Field Placement Seminar II. (1) (O) Corequisite: SOWK 3484. A continuation of SOWK 3683. (*Fall, Spring, Summer*)

SOWK 3895. Directed Individual Study. (1-4) Prerequisite: consent of the Department. Supervised investigation of a special problem. May be repeated for credit. (*Fall, Spring, Summer*)

SOWK 4100. Ethnicity and Aging. (3) Prerequisite: consent of the instructor. Examines the changing characteristics, goals, and needs of older African-Americans, Asian-Americans, Native Americans, and Hispanics. Provides a diversity of perspectives from which to view the relationship of ethnicity to aging including the impact of the family, work, education, economy, illness, behavior, and health care. (*On demand*)

SOWK 4101. Social Work Practice With the Elderly. (3) Prerequisite: consent of the Department. Continuum of care for the elderly. Psychosocial assessment, treatment/intervention planning, and implementation. Approached from eclectic clinical social work perspective, with particular emphasis on psychosocial systems, family, and group treatment modalities. (*On demand*)

SPANISH (SPAN)

SPAN 1100. Elementary Spanish I. (3) Prerequisite: may be taken *only* by students with no previous experience in Spanish. First course in a college-level sequence to develop competence in speaking, understanding, reading, and writing Spanish, in a cultural context. (*Fall, Spring, Summer) (Evenings*)

SPAN 1101. Elementary Spanish II. (3) Prerequisite: SPAN 1100 or equivalent. Second course in a college-level sequence to develop competence in speaking, understanding, reading, and writing Spanish, in a cultural context. The first course offered for students with previous experience in Spanish. *(Fall, Spring, Summer) (Evenings)*

SPAN 1102. Elementary Spanish III. (3) Prerequisite: SPAN 1101 or equivalent. Third course in a college-level sequence to develop competence in speaking, understanding, reading, and writing Spanish, in a cultural context. *(Fall, Spring, Summer) (Evenings)*

SPAN 2009. Hispanic Literature in English Translation. (3) (W, L) Studies of Spanish or Spanish American literature in translation. Not applicable toward Spanish major. May be repeated for credit as topics vary. Course conducted in English. (*On demand*)

SPAN 2050. Topics in Spanish. (1-3) Prerequisite: SPAN 1102 or permission of the Department. Study of a particular facet of the Spanish language, culture or literature. May be repeated for credit as topics vary. (*On demand*)

SPAN 2201. Intermediate Spanish I. (3) Prerequisite: SPAN 1102 or equivalent. Review of grammar and reinforcement and expansion of competence in speaking, understanding, reading, and writing, in a cultural context. *(Fall, Spring)*

SPAN 2202. Intermediate Spanish. (3) Prerequisite: SPAN 2201 or permission of the Department. Extensive practice in oral and written control of the language on basis of readings from Spanish or Spanish American literature. (*Fall, Spring*)

SPAN 2205. Spanish Conversation. (3) (O) Prerequisite: SPAN 2201 or equivalent. Intensive oral practice in conversation through exploration of varied topics. Speeches, presentations, discussions, and dialogs. *(Fall, Spring)*

SPAN 2210. Introduction to Business Spanish. (3) Prerequisites: SPAN 2201 or permission of the Department. Introduction to spoken and written language of the Spanish-speaking business world. Acquisition of and practice with general commercial terminology used in Spanish for such functional business areas as economics, management, marketing, finance, and import-export. (Alternate to SPAN 2202.) *(Fall)*

SPAN 2211. Spanish for Criminal Justice Professionals. (3) Prerequisite: SPAN 2201 or permission of the Department. Spoken and written Spanish for criminal justice professionals. *(Fall)*

SPAN 2212. Spanish for Health Care Professionals. (3) Prerequisite: SPAN 2201 or permission of the Department. Spoken and written Spanish for health care professionals. *(Spring)*

SPAN 3009. Masterpieces of Hispanic Literature in English Translation. (3) (WLX) Prerequisites: sophomore standing and ENGL 1102. Advanced studies of Spanish or Spanish-American literature in English translation. Not applicable toward a Spanish major. May be repeated for credit as topics vary. Course conducted in English. (*On demand*)

SPAN 3019. Hispanic Women Writers in English Translation. (3) (W, L or W, X) Prerequisite: ENGL 1102 and sophomore standing, or permission of instructor. Examination of prose and poetry by women writers from Spain and the Americas to understand women's voices and other cultures. Conducted in English. Knowledge of Spanish not required. Not applicable toward Spanish major. *(On demand)*

SPAN 3029. Cultural Dimension of Doing Business with Spanish-speaking Countries (3) Prerequisite: ENGL 1102 or 1103. Development of cultural awareness for conducting business with Spanish-speaking countries and U.S. Hispanic communities. Not applicable toward Spanish major or minor. Course conducted in English. *(On demand)*

SPAN 3050. Topics in Spanish. (1-3) Prerequisite: SPAN 2202 or equivalent. Study of a particular facet of the Spanish language, culture, or literature at the 3000 level. May be repeated for credit as topics vary. *(On demand)*

SPAN 3160. Studies in Hispanic Film. (3) The study of Spanish Peninsular, Spanish American, or Hispanic/Latino films. Not applicable toward Spanish major or minor. Course conducted in English. May be repeated for credit as topics vary. (Yearly)

SPAN 3201. Advanced Grammar and Composition. (3) Prerequisite: SPAN 2202 or permission of the Department. Intensive oral and written work in Spanish. (*Fall*)

SPAN 3202. Advanced Conversation and Composition. (3) Prerequisite: SPAN 2202 or permission of the Department. Intensive oral and written work in the language. Reports on collateral readings. (*Spring*)

SPAN 3203. Advanced Grammar, Composition, Syntax, and Rhetoric for Native Speakers. (3) Prerequisite: SPAN 2202 or permission of the Department; student must be a native speaker of Spanish, as determined by the Department. Advanced studies in Spanish grammar, composition, syntax, and rhetoric. For native speakers. Replaces SPAN 3201 and 3202 *(Fall)*

SPAN 3209. Spanish Civilization and Culture. (3) Prerequisite: SPAN 2202 or permission of the Department. Introduction to the cultural heritage of peninsular Spain. (*Alternate semesters*)

SPAN 3210. Spanish American Civilization and Culture. (3) Prerequisite: SPAN 2202 or permission of Department. Introduction to the cultural heritage of Spanish America. (*Alternate semesters*)

SPAN 3211. Introduction to Masterworks of Spanish Literature. (3) Prerequisite: SPAN 2202 or permission of the Department. Reading and analysis of representative master/works of Spanish literature from its origins through the 20th Century. *(Fall)*

SPAN 3212. Introduction to Spanish American Literature. (3) Prerequisite: SPAN 2202 or permission of

the Department. Introduction to Spanish American literature from the 16th century through the contemporary period. *(Spring)*

SPAN 3231. Spanish Phonetics. (3) Prerequisite: SPAN 2202 or permission of the Department. Detailed analysis of description and production of Spanish sounds. Practical exercises include phonetic transcription and recordings. (*On demand*)

SPAN 3800. Directed Individual Study. (1-3) Prerequisite: permission of the Department; normally open only to foreign language majors and minors. Individual work on a selected area of study. To be arranged with the instructor during the preceding semester. By special permission only. May be repeated for credit. (*On demand*)

SPAN 4050. Selected Topics in Spanish. (1-2-3) Prerequisites: two 3000 level courses or permission of the Department. Consideration of a predetermined topic. May be repeated for credit as topics vary. (*On demand*)

SPAN 4120. Advanced Business Spanish I. (3) Prerequisites: SPAN 2210, 3201 and an additional 3000- or 4000 level course (3202 recommended), or permission of the Department. Advanced studies in Business Spanish, intensive practice in speaking, listening comprehension, reading, writing, and translation in functional business areas such as economics, management, and marketing. *(Fall)*

SPAN 4121. Advanced Business Spanish II. (3) Prerequisites: SPAN 2210, 3201 and an additional 3000- or 4000 level course (3202 recommended), or permission of the Department. Advanced studies in Business Spanish, intensive practice in speaking, listening comprehension, reading, writing, and translation in functional business areas such as marketing, finance, and import-export. *(Spring)*

SPAN 4201. Nineteenth-Century Spanish Literature. (3) Prerequisites: two 3000 level courses or permission of the Department. Survey of peninsular literature from Costumbrismo through the Generation of 1898. Lectures, discussions, and reports. (*Alternate years*)

SPAN 4202. Twentieth-Century Spanish Literature. (3) Prerequisites: two 3000 level courses or permission of the Department. Treatment of major literary developments from the Generation of 1898 to present day. Lectures, discussions, and reports. (*Alternate years*)

SPAN 4205. Novel of the Golden Age. (3) Prerequisites: two 3000 level courses or permission of the Department. *El Lazarillo* through *El Criticón*. Lectures, discussions, and reports. (*Alternate years*)

SPAN 4206. Theater of the Golden Age. (3) Prerequisites: two 3000 level courses or permission of the Department. Study of works of the leading dramatists of the period. Lectures, discussions, and reports. (*Alternate years*)

SPAN 4210. Studies in Spanish American Poetry. (3) Prerequisites: two 3000 level courses or permission of the Department. Studies of 19th- and 20th-century Spanish American poetry. (*Alternate years*)

SPAN 4211. Studies in Spanish American Prose Fiction. (3) Prerequisites: two 3000 level courses or permission of the Department. Studies of 19th- and 20th-century Spanish American prose fiction. (*Alternate years*)

SPAN 4212. Studies in Spanish American Theater. (3) Prerequisites: two 3000 level courses or permission of the Department. Studies of 20th-century Spanish American theater. (*On demand*)

SPAN 4213. Don Quijote. (3) Prerequisites: two 3000 level courses or permission of the Department. Study of Cervantes' masterpiece. (*On demand*)

SPAN 4410. Professional Internship in Spanish. (1-6) Prerequisites: SPAN 3201 and 3202, or equivalent and consent of the Department. Faculty-supervised field and/or research experience in a cooperating profession (e.g. business) or community organization. Contents of internship based upon a contractual agreement among the student, department, and business or community organization. Offered on a *Pass/No Credit basis. (Fall, Spring, Summer)*

SPAN 4800. Directed Individual Study. (1-3) Prerequisite: permission of the Department; normally open only to foreign language majors and minors. Individual work on a selected area of study. To be arranged with the instructor, generally during the preceding semester. By special permission only. May be repeated for credit. (*On demand*)

SPECIAL EDUCATION (SPED)

SPED 2100. Introduction to Students with Special Needs. (2) Corequisite: EDUC 2100. Characteristics of students with special learning needs, including those who are gifted and those who experience academic, social, emotional, physical, and developmental disabilities. Legal, historical, and philosophical foundations of special education and current issues in providing appropriate educational services to students with special needs. Field-based activity required. (*Fall, Spring, Summer)*

SPED 3171. Education of Learners with Mental Disabilities. (3) Prerequisite: admission to Teacher Education. Overview of learner characteristics and continuum of educational services for students who are mentally disabled. Focus on curriculum models of remedial, compensatory, and life skills instruction, interaction with General Education curriculum, and curricular decision-making. *(Fall)*

SPED 3172. Directed Readings in Special Education Research. (3) Prerequisite: admission to Teacher Education. Introduces fundamental educational research procedures, critical evaluations of published research, identification of instructional implications of published research, and ethical issues in research and practice. *(Fall)*

SPED 3173. Special Education Assessment. (3) Prerequisite: admission to Teacher Education. Fundamental concepts in educational assessment of exceptional students, with emphasis on the referral-to-placement process in special education, including multidisciplinary team roles and the development of Individualized Education Programs (IEPs).

Requires two hours of field-based assignments each week. *(Fall)*

SPED 3174. Classroom-Based Assessment. (3) Prerequisites: admission to Teacher Education, SPED 3171, and SPED 3173. Classroom assessments for use by special educators in identifying instructional needs, planning instruction, modifying instruction, and monitoring programs across content areas. Approximately 7 hours of field experiences. *(Spring)*

SPED 3273. Life Skills Instruction. (3) Prerequisites: admission to Teacher Education. Methods and materials for teaching functional skills in daily living, social, and vocational domains that will enable persons with special needs to live independently in their communities. Requires two hours of field-based assignments in schools each week. *(Fall)*

SPED 3290. Modifying Instruction for Learners with Diverse Needs. (2) Prerequisite: admission to Teacher Education. Corequisite: enrollment in methods course(s) with field experience requirement. Strategies for adapting standard instruction to meet the learning needs of all members of elementary, middle, or secondary classrooms, including students at risk for school failure, individuals from culturally and linguistically diverse backgrounds, gifted learners, and students with disabilities. *(Fall, Spring, Summer)*

SPED 3470. Student Teaching/Seminar: K-12 Special Education: Mental Disabilities. (15) (O) Prerequisites: approval of an Application to Student Teaching. A planned sequence of experiences in the student's area of specialization conducted in an approved school setting under the supervision and coordination of a University supervisor and cooperating teacher requiring demonstration of the competencies identified for the student's specific teaching field in an appropriate grade level setting. Requires approximately 35-40 hours per week in an assigned school setting and 10-12 on-campus seminars scheduled throughout the semester. *(Fall, Spring)*

SPED 3800. Individual Study in Special Education. (1-6) Prerequisite: permission of the student's advisor. Independent study under the supervision of an appropriate faculty member. May be repeated for credit. *(Fall, Spring, Summer)*

SPED 4000. Topics in Special Education. (1-6) May include classroom and/or clinical experiences in the content area. With department approval, may be repeated for credit for different topics. *(Fall, Spring, Summer)*

SPED 4110. Assessment in Special Education: Preschool. (3) Prerequisite: admission to Teacher Education. Strategies for interdisciplinary educational assessment to identify needs and plan appropriate programs for young children with disabilities and their families. Approximately 20 hours of field experiences. *(Fall)*

SPED 4111. Issues in Preschool Education for Children with Disabilities. (3) Prerequisite: admission to Teacher Education. Current issues and trends in early intervention and preschool services for young children with disabilities and their families. Includes field trips scheduled throughout the semester. *(Fall)*

SPED 4170. Special Education Consultation and Collaboration. (3) Prerequisite: admission to Teacher Education. Methods for multidisciplinary planning, co-teaching with general educators in inclusive settings, utilizing paraeducators effectively, working with parents of exceptional students, and building collaborative interagency services for students with disabilities. *(Fall, Spring, Summer)*

SPED 4210. Instructional Methods and Materials: The Early Years. (3) Prerequisite: admission to Teacher Education. Goal-setting, instructional design, and strategies for teaching young children with disabilities and their families. Includes a field-based assignment of approximately 20 hours. *(Spring)*

SPED 4211. Nature and Needs of Gifted Children. (3) Prerequisite: admission to Teacher Education. Examination of the historical and philosophical perspectives of education for gifted and talented learners with emphasis on answering the question, "What is giftedness?" Issues explored in the course include identification procedures, instructional options, the nature of intelligence and creativity, laws/policies, psychological and emotional correlates of talent, and current research findings. *(Fall)*

SPED 4270. Classroom Management. (3) Prerequisite: admission to Teacher Education. Theoretical context and related applied strategies necessary to manage effectively the classroom behaviors of individuals or groups of students. Requires a field-based assignment of approximately 10 hours. *(Fall, Spring)*

SPED 4272. Teaching Mathematics to Learners with Special Needs. (3) Prerequisite: admission to Teacher Education. Strategies, techniques, and activities to teach functional mathematics to students with special needs. Assessment issues, an exploration of developmental, remedial, and functional mathematics, curricular modifications, and functional applications. Requires two hours of field-based work in schools each week. *(Fall, Spring)*

SPED 4276. Teaching Language Arts to Learners with Special Needs. (3) Prerequisites: admission to Teacher Education, SPED 3171, SPED 3173, and READ 3226. Knowledge and practice in remediating language arts deficits and providing sound developmental instruction for learners who have special needs. Approximately 20 hours of field experiences.*(Fall, Spring)*

STATISTICS (STAT)

All STAT/MATH/OPRS courses offered by the Department of Mathematics are approved to satisfy requirements for the Problem Solving (P) Goal of UNC Charlotte Education.

STAT 1220. Elements of Statistics I (BUSN). (3) Prerequisite: MATH 1100 or placement by the Department. Noncalculus based introduction to data summarization, discrete and continuous random variables (e.g., binomial,

normal), sampling, central limit theorem, estimation, testing hypotheses, and linear regression. Applications of theory will be drawn from areas related to business. May not be taken for credit if credit has been received for STAT 1221 or 1222. *(Fall, Spring, Summer) (Evenings)*

STAT 1221. Elements of Statistics I (BIOL). (3) Prerequisite: MATH 1100 or placement by the Department. Same topics as STAT 1220 with special emphasis on applications to the life sciences. May not be taken for credit if credit has been received for STAT 1220 or 1222. *(Fall, Spring)*

STAT 1222. Introduction to Statistics. (3) Prerequisite: MATH 1100 or placement by the Department. Same topics as STAT 1220 with special emphasis on applications to the social and behavioral sciences. May not be taken for credit if credit has been received for STAT 1220 or 1221. *(Fall, Spring, Summer) (Evenings)*

STAT 1223. Elements of Statistics II. (3) Prerequisite: STAT 1220, 1221, or 1222. A continuation of STAT 1220 or 1221 or 1222. Topics include contingency analysis, design of experiments, more on simple linear regression, and multiple regression. Computers will be used to solve some of the problems. *(Fall) (On demand)*

STAT 2122. Introduction to Probability and Statistics. (3) Prerequisite: MATH 1242 or consent of the Department. A study of probability models, discrete and continuous random variables, inference about Bernoulli probability, inference about population mean, inference about population variance, the maximum likelihood principle, the minimax principle, Bayes procedures, and linear models. *(Fall, Spring, Summer) (Evenings)*

STAT 3122. Probability and Statistics I. (3) Same as MATH 3122. *(Fall) (Evenings)*

STAT 3123. Probability and Statistics II. (3) Same as MATH 3123. *(Spring) (Evenings)*

STAT 3126. Applied Statistical Methods. (3) Prerequisites: MATH 3123 or consent of the Department. Regression analysis, time series analysis, and forecasting. Survival models and their estimation. *(Fall)*

STAT 3128. Probability and Statistics for Engineers. (3) Prerequisite: MATH 2241. An introduction to: probability theory; discrete and continuous random variables and their probability distributions; joint probability distributions; functions of random variables and their probability distributions; descriptive statistics; point and interval estimation; one and two sample hypothesis testing; quality control; one and two factor ANOVA; and regression. Credit will not be given for both STAT 3128 and any of one of the courses: STAT 2122, MATH 3125, MATH/STAT 3122/3123.

THEATRE (THEA)
(See also Dance and Theatre) (DATH)

THEA 1101. Introduction to Theatre. (3) (A,W) Survey and analysis of the elements that make up the theatrical event. Three contact hours. *(Fall, Spring)*

THEA 1102. Creative Drama for the Classroom Teacher. (3) Drama and theatre as tools for exploring the processes of synthesis, creativity, divergent thinking, and experiential and authentic learning. *(Fall, Spring)*

THEA 1103. Acting for Non-Theatre Majors. (2) Introduction to the nature of acting for the stage. Study and practice of acting principles, including voice development, movement, and the use of the imagination. (Does not serve as a prerequisite for THEA 2209.)*(On demand)*

THEA 1109. Preliminary Experience in Student Teaching. (1) Prerequisite: THEA 1102. Observation of licensed theatre arts teachers on both the primary and secondary school levels. Some participation in class activities required. Graded on a *Pass/Fail basis*. *(Fall, Spring)*

THEA 1203. Stagecraft I. (3) An introduction to scenery construction procedures and techniques. Technical elements of stage lighting are also covered. Some afternoon crew hours required. *(Fall, Spring)*

THEA 1204. Stagecraft II - Drafting for the Stage. (3) Prerequisite: THEA 1203 or consent of instructor. Expansion of THEA 1203 with drafting techniques for scenic design working drawings included. *(On Demand)*

THEA 1205. Costuming Techniques and Stage Makeup. (3) Introduction to costume shop equipment, sewing techniques, construction of costume accessories, and theatrical makeup techniques. *(Fall, Spring)*

THEA 1209. Acting I. (3) Prerequisite: DATH 1100. Continuation of the voice/body and improvisational work begun in DATH 1100 while focusing on objectives and text analysis through scene work. Four contact hours. *(Fall, Spring)*

THEA 2101. Play Analysis. (3) Tools for developing an interpretation of the play script, including exploration of the ways scripts are used by directors, actors, designers, and dramaturgs in preparing plays for the stage. Prerequisite for THEA 2216. Play *(Spring)*

THEA 2103. Costume Design. (3) Costume design theory and history. *(Fall) (Alternate years)*

THEA 2205. Scene Design I. (3) Prerequisite: DATH 1200, THEA 1203 and 2101 or consent of instructor. An introduction to those theories and techniques that are unique to scene design for theatre, dance, and opera. (Fall)

THEA 2206. Scene Design II. (3) Prerequisite: THEA 2205. Graphic arts for stage design: drawing, rendering, model construction, and computer modeling. *(On Demand)*

THEA 2207. Puppetry. (3) Types of puppets and the history of puppetry with emphasis on basic puppetry construction and production problems. *(On demand)*

THEA 2208. Audition Techniques. (2) Prerequisite: THEA 1209 or permission of instructor. The process of auditioning for stage, commercials, and film. Four contact hours. (*Spring) (Alternate years*)

THEA 2209. Acting II. (3) Prerequisite THEA 1209 or permission of instructor for non-majors. Further development of the skills and techniques used in preparing a role for performance. Advanced scene study and monologue work. Four contact hours. (Fall)

THEA 2212. Stage Lighting. (3) Prerequisite: DATH 1200, THEA 1203, THEA 2101, or consent of instructor. An introduction to those theories and techniques that are unique to stage lighting for theatre, dance, and opera. *(Spring)*

THEA 2214. Scene Painting. (3) Prerequisite: DATH 1200 or consent of instructor. An introduction to those theories and techniques that are unique to scene painting for theatre, dance, and opera. *(On demand)*

THEA 2216. Elements of Theatre Staging. (3) Prerequisite DATH 1100 and THEA 2101 or consent of instructor. Principles and techniques of play directing including analyzing texts, staging, and communication with actors. *(Fall)*

THEA 2217. Directing. (3) Prerequisite: THEA 2216. Continuation of THEA 2216, with emphasis on advanced analysis, coaching, communication with designers, and complex staging problems. (*Spring)*

THEA 2218. Playwriting. (3) (W) Writing scenes for stage or screen and performing dramatic readings of fellow writers' scenes. A number of plays will be analyzed. (*Fall, Spring on demand*)

THEA 2409. Practicum in Creative Drama: K-8. (3) Prerequisite: THEA 1102 or consent of instructor. Study and application of advanced theories, concepts, competencies, and processes unique to primary and middle school settings, with particular attention to the various subject areas. Centered on in-school teaching experience and clinical practice. (*Spring)*

THEA 2410. Practicum in Secondary School Play Production: 9-12. (3) Prerequisite: THEA 1209 and 2216 or consent of instructor. Study and application of advanced theories, concepts, competencies, and processes in theatre arts for teaching the specialized areas of production and performance in a secondary school setting (9-12). (*Spring)*

THEA 3001. Topics in Theatre. (1-6) (W) Special topic in theatre. May be repeated for credit with change of topic. (*On demand*)

THEA 3101. Theatre History I. (A) (3) Theatre history from pre-classical periods to the seventeenth century. (*Fall)*

THEA 3102. Theatre History II. (3) (A) Seventeenth century to the present. (*Spring)*

THEA 3209. Acting III. (3) Prerequisite: THEA 2209. In-depth study of sub-text, focusing on 19th Century Modern Realism. May be repeated for credit with change of approach. Four contact hours. (Spring)

THEA 3210. Acting IV. (3) Prerequisite: THEA 3209. Exploration of characters focusing on various historical periods, theatrical styles, and cultural influences. May be repeated once for credit. Four contact hours. *(Fall) (Alternate years)*

THEA 3220. Methods of Facilitating Learning in Theatre Arts. (3) Prerequisites: THEA 1109 and EDUC 2100 or consent of the instructor. Exploration of pedagogical methodologies in theatre arts and the application of theory to the classroom setting. Includes instructional planning and review of state mandated goals, objectives, measures, and competencies for theatre arts classes. Includes clinical experience. *(Fall)*

THEA 3400. Internship in Theatre. (3-6) Prerequisites: at least a 2.5 GPA, junior status, and permission of Department Chair. Research and/or in service training for theatre majors and minors in cooperating organizations. Specific content based upon a contract between the student, department, and professional organization. Graded on a *Pass/Fail basis. (Fall, Spring, Summer)*

THEA 3467. Student Teaching/Seminar: K-12 Fine and Performing Arts: Theatre. (15) Prerequisite: approved application for student teaching; senior status; completion of professional education requirements; grades of *C* or better in all courses required for licensure. Corequisite: enrollment only in student teaching. A planned sequence of experiences in the student's area of specialization conducted in an approved school setting under the supervision and coordination of a University supervisor and a cooperating teacher in which the student demonstrates the competencies identified for his/her specific teaching field in an appropriate grade level setting. *(Fall, Spring)*

THEA 3601. Individual Project. (3) Permission of Department Chair. May be repeated for credit. *(Fall, Spring, Summer)*

THEA 3691. Individual Project. (6) Prerequisite: Permission of Department Chair. May be repeated for credit. *(Fall, Spring, Summer)*

TRANSLATING (TRAN)

TRAN 3271. Introduction to Translating. (3) Prerequisite: completion through 2202 level of one language other than English, or equivalent. Difference between translating and interpreting; psychological differences among speakers of different languages; patterns of language development; non-verbal language; levels of language; demonstrations of interpreting; career options; professional associations and their functions; sources of employment information. (*Fall*) (*Alternate years*)

TRAN 3272. Elementary Translating. (3) Prerequisites: native fluency in English and completion through 2202 level of source language, or equivalent. TRAN 3271 is required

for students taking the Certificate sequence, and is strongly recommended for any others who wish to take TRAN 3272. Comparative analysis of translated texts; questions of restructuring texts and adding or subtracting material; style/audience relationship; simple translations from source language to English; sight translation. *(Spring) (Alternate years)*

TRAN 3273. Intermediate Translating. (3) Prerequisite: successful completion of TRAN 3272. Critical analysis of different kinds of English texts and of texts translated into English; translations for specific audiences; problems of terminology; history and theories of translating; development of working dictionaries in field of specialization; investigation of employment opportunities. *(Fall) (Alternate years)*

TRAN 3274. Advanced Translating. (3) (W) Prerequisite: successful completion of TRAN 3273. Study of professional journals in the field of translation; specific problems of source/target language equivalents; translating of substantial text(s) in field of specialization. Texts may be scientific, technical, commercial, scholarly or literary, depending on the student's field of specialization. *(Spring) (Alternate years)*

WOMEN'S STUDIES (WMST)

WMST 1101. Introduction to Women's Studies. (3) (V, C) Introduction to values associated with gender and basic issues confronting women in society, from a variety of cultural and feminist perspectives. *(Fall, Spring)*

WMST 2050. Topics in Women's Studies. (1-3) Credit hours vary with topics. Special topics in Women's Studies. May be repeated for credit as topics vary. *(On demand)*

WMST 2150. U. S. Women's History to 1877. (3) A survey of women's experience in the U. S. from colonization through the civil war and reconstruction. Special emphasis on the evolution of women's public roles and the impact of class, race, and region in shaping women's lives. (Same as HIST 2150) *(Alternate years)*

WMST 2251. U.S. Women's History since 1877. (3) A survey of women's experience in the U.S. from reconstruction to the present. Special emphasis on work, family, and feminism, and the impact of class, race, and region in shaping women's lives. Same as HIST 2151. *(Alternate years)*

WMST 2252. European Women's History. (3) An exploration of women's experiences in western Europe and Russia, covering topics of religion, work, family, and politics. Same as HIST 2152. *(Alternate years)*

WMST 3050. Topics in Women's Studies. (3) Special topics in Women's Studies. May be repeated for credit as topics vary. *(On demand)*

WMST 3050-B01. Women in Judaism. (3) (X, V)

WMST 3050-D01. Women's Diaries and Women's Experience. (3) (W)

WMST 3102. Changing Realities of Women's Lives. (3) (W) Influence of gender, race and class stereotypes on women's identities and choices. Examination of women's individual circumstances through writing. *(Fall, Spring, Summer)*

WMST 3131. History of Sexuality. (3) An exploration of the roots of our modern attitudes toward sexuality beginning with ancient Greece and Rome, Judaism, and Christianity. Examination of changing attitudes and practices from the Enlightenment to the Victorians. Discussion of marriage, fertility control, abortion, prostitution, and homosexuality. Same as HIST 3131. *(On demand)*

WMST 3212. Women and Peacebuilding. (3) (V,C) Exploration of the contributions women can make and have made to peacebuilding and conflict-resolution. *(Alternate years)*

WMST 3220. Feminist Thought. (3) (W,V,L) Cross-cultural and interdisciplinary survey of the main traditions of feminist theory in the context of their historical and philosophical roots. *(On demand)*

WMST 3226. Psychology of Women. (3) Prerequisite: PSYC 1101. Application of research in developmental, experimental, and clinical psychology to issues regarding women and gender. Includes such topics as gender-role development, gender differences in cognitive abilities and performance, psychological perspectives on women's physical and mental health, and violence toward women. (Same as PSYC 3126) *(Alternate years)*

WMST 3227. Feminist Philosophy. (3) Views of contemporary feminist and female philosophers on traditional philosophical issues such as ethics, human nature, the construction of knowledge, modes of social and political organization, the relationship between the mind and the body, and the nature of God. (Same as PHIL 3227.) *(Alternate years)*

WMST 3231. Working Women/Women in Business. (3) Historical, sociological, legal, personal, and cross-cultural issues affecting working women. *(Summer)*

WMST 3803. Independent Study. (3) Prerequisite: permission of instructor and Women's Studies Coordinator. Supervised individual study and/or field-based experience in a topic or area of Women's Studies of particular interest to the student. May be repeated for credit. *(Fall, Spring)*

WMST 4050. Topics in Women's Studies. (1-3) Prerequisite and credit hours vary with topics. Special topics in Women's Studies. May be repeated for credit as topics vary. *(On demand)*

WMST 4101. Applied Research/Field Work. (3) (C) Prerequisite: permission of the Women's Studies Coordinator. Research and in-service training in cooperative community organizations that provide services to women and their families. Specific content based on contract between student, supervising professor, and community organization. *(On demand)*

WMST 4165. Sociology of Women. (3) Prerequisite: SOCY 1101 or WMST 1101. Junior standing or permission of the instructor required. Examines how the social world of women is influenced by their race, ethnicity, and class. Attention is given to changing roles of women in public and private spheres, and to the role conflict that arises as women attempt to meet obligation in families, communities, and the workplace. The same as SOCY 4165. *(Yearly)*

WMST 4191. Women's Health Issues. (3) Prerequisite: permission of the instructor. Exploration of contemporary issues in women's health from the feminist and women's health movement perspectives. Same as NURS 4191. (*Fall*)

WMST 4228. French Women Writers in Translation. (3) (LCX). Prerequisites: junior standing and ENGL 1102 or equivalent. Advanced studies of literature and criticism by French women writers in English translation, with a focus on women's issues from a cross-cultural perspective. May be repeated for credit as topics vary. Course conducted in English. *(On demand)*

WMST 4260. Women and Aging. (3) Position of older women in society and the particular problems of and issues for women as they age. (The same as GRNT 4260.) *(Yearly)*

WMST 4601. Senior Colloquium. (3) Prerequisites: completion of 15 hours in women's studies, or permission of instructor. Critical examination of selected issues. *(On demand*)

FACILITIES AND SERVICES

THE CAMPUS

The campus is located off Harris Boulevard on NC 49 near its intersection with US 29, and only eight miles from the interchange of Interstates 85 and 77. Campus facilities are composed of air-conditioned contemporary buildings. In addition to classrooms and well-equipped laboratories, the University offers arts and athletic facilities, cafeterias, and residence accommodations. The campus is designed for the pedestrian, and facilities are generally accessible to students with disabilities.

A map of the campus is included on the back cover of this *Catalog*.

UNC Charlotte Uptown. The University offers selected upper-division undergraduate and graduate courses and a variety of continuing personal and professional development programs at its UNC Charlotte Uptown location. Classes are scheduled for the convenience of persons employed in or living near the central business core of the city. UNC Charlotte Uptown is located at 220 North Tryon Street, on the third floor of the Mint Museum of Craft + Design. When traveling I-77, either north or south, exit onto Fifth Street. Stay on east Fifth Street until you reach Tryon Street.

Parking is the responsibility of Parking Services, located in the Auxiliary Services Building. Parking on campus requires purchase and display of a University parking permit or payment to park at meters or in visitor's decks. Night Decals for evening-only students are available by the semester. Permits do not guarantee a space will be available nor do they reserve a specific space, except in the case of individuals with disabilities. Abbreviated copies of the *Campus Parking Rules and Information* are available from Parking Services. For information on fees for motor vehicle registration and parking, see the section on *Financial Information* in this *Catalog*.

The Charlotte Transit System provides bus transportation from the Square in uptown Charlotte and from Southpark (via Eastland Mall and the apartment complexes along Barrington Drive, Route 29 & 39). Service is provided on a regular schedule connecting with established routes throughout the city. Brochures containing detailed information regarding routes, schedules, and TRAC passes may be obtained in the Parking Services Office, or by calling the Charlotte Transit Authority at (704) 336-3366. Fees are set by Charlotte Transit and are subject to change.

Police and Public Safety services to the University community are provided 24 hours a day, seven days a week. Campus Police Officers are sworn, certified law enforcement officers.

The Department of Police and Public Safety, King Building room 113, is responsible for crime prevention, enforcement of laws and regulations, protection of life and property, preservation of peace, apprehension of criminals, and Lost and Found property.

Emergency telephones are located throughout the campus and are identified by "blue lights."

Recycling services are coordinated by the Waste Reduction and Recycling Office (704-687-2137) within Facilities Management. The University's recycling program, initiated by students in 1990, currently recycles 30% of the solid waste generated on campus. The Waste Reduction and Recycling program recycles over 25 items on campus. Residence halls are equipped with outdoor recycling centers, floor-level recycling containers in most halls, and a small recycling bin in each room. The following items are recycled in all academic and administrative areas: aluminum cans, glass and plastic bottles, office paper, newspaper, magazines, cardboard, transparencies, and hard and soft back books. The Waste Reduction and Recycling program also includes a food-waste composting project. This pilot project is funded through a grant awarded by the North Carolina Department of Environment and Natural Resources Division of Pollution Prevention and Environmental Assistance.

The recycling program provides educational sessions for students, faculty, and staff. The program coordinates and sponsors the UNC Charlotte Earth Day Environment Festival and co-sponsors 49er Green Day activities with the Dean of Students Office. The Waste Reduction and Recycling Office offers students a chance to embrace actively their environmental responsibilities and to demonstrate concerns through volunteer and employment opportunities. Active and concerned students designed and initiated the food recovery, aluminum can, and residence hall recycling programs. The food recovery program continues to be operated by volunteer students through the Assistant Dean of Students Office. The food recovery program takes leftover food from the campus dining facilities and delivers it to Urban Ministries to feed needy and homeless people.

These waste reduction and recycling programs and others help UNC Charlotte in its effort to meet North Carolina's 40% waste reduction goal by the year 2001. For more information about UNC Charlotte's waste reduction and recycling activities, view the website at http://www.uncc.edu/recycling or call the office at 704-687-2137or 704-687-3890.

Safety Services and Accident Prevention are the concerns of the Environmental/Occupational Safety and Health Office in the Department of Human Resources. It is the responsibility of this office to investigate accidents on campus, conduct safety inspections of all buildings, maintain all reports required by the N.C. Department of Labor, and generally work to reduce the risks of illness or injury in the University community. This office is located in room 119, Garinger Building.

EDUCATIONAL SERVICES AND FACILITIES

The J. Murrey Atkins Library, located near the center of the campus, houses an open-shelf collection that includes over 725,388 bound volumes and extensive microform collections. The Library of Congress classification system is

used for the arrangement of books and periodicals, and an online catalog provides access to a substantial portion of the collection.

The library offers state-of-the-art electronic access to local and worldwide resources. JASMINE, the Library's online catalog, provides access to print and non-print resources located within the Library and available over the Web. Networked multitasking computers with high speed printing and download capabilities provide electronic access to local research databases, electronic journals, full-text articles, and Internet connections to the world including NC Live, the North Carolina electronic initiative with access to thousands of databases. Web-based access to Library electronic research materials is also available from other locations on- and off-campus, if license agreements permit.

A number of special collections are available. A selective depository of U.S. publications since 1964, Atkins Library has over 958,800 federal government documents, including statistics, bibliographies, and full text files on compact discs. The North Carolina documents collection, begun in 1976, is a rapidly growing collection of publications of state government agencies; the library was designated one of the first depositories for North Carolina documents in 1988. The Local Public Documents Room Collection for the McGuire Nuclear Plant on Lake Norman is located in the Library. Atkins Library also houses a growing collection of over 50,053 maps, ranging from USGS topographic quadrangles to historic WWII-era Defense Mapping Agency maps.

The Mary and Harry L. Dalton Rare Book and Manuscript Room houses collections of rare books, historical manuscripts, local government documents, and official University records. The 6754 volume Rare Book Collection specializes in American literature, historical children's books, and English drama. The Manuscript Collections contain over one million unpublished papers, photographs, and architectural drawings relating to the history of Charlotte-Mecklenburg and surrounding counties, while the Local Documents Collection emphasizes printed materials issued by governmental bodies in the region. The University Archives and Records Management Program provides information support services for current University operations and preserves approximately one million items that document the history of the University.

Atkins Library meets the informational needs of the University community by offering a variety of services. Library staff provide assistance to users in locating information and in use of the library. The library offers general orientation tours during the fall semester. The staff offers an active library instruction program, which includes customized presentations and resource guides and instruction sheets on locating and using library resources.

For further information about library resources and services check the Library's web page at http://www.libweb.uncc.edu.

Media Services is located within the Information Commons of the J. Murrey Atkins Library. Professional staff provide assistance to faculty and students for instructional purposes in the areas of graphics, multimedia, video production web design and presentation support.

Faculty may develop multimedia and web-related projects utilizing the hardware and software applications available in the multimedia resource lab. The lab is fully equipped with networked Macintosh and Gateway computers and scanners, as well as illustration, presentation, desktop publishing, digitization, multimedia, and web authoring software.

Students have access to networked computers to assist them in their research and productivity needs. Both black and white and color printing is available.

The unit manages a television studio and teleconference and teleclassroom facilities as part of two, highly sophisticated, fully interactive video networks in conjunction with the Microelectronics Center of North Carolina and the North Carolina Information Highway. Professional assistance is available upon request.

Additional services provided by the unit include consultation and assistance for multimedia development, web page development, graphic design, and instructional design and development. Digital imaging services, video and audio duplication, international tape conversion, video tape editing (both analog and digital), slide duplication, original illustration for web and publications, web design and development, and web courseware training and support are also available.

Computing Services provides the University's infrastructure to support instructional, research, and administrative computing. The campus has a robust data network. All student computing labs and offices have full access to the Internet. All students, faculty, and staff have an electronic mail account and, if desired, a web page account. There are over 42 student computing labs with a total of over 860 stations. Many computing labs have specialized software and hardware. The University's major systems are accessible from off campus using an Internet Service Provider. The University is a member of the North Carolina Research and Education Network, which provides access to the North Carolina Supercomputer Center and other state resources.

University Learning Center. Designed to improve academic performance and foster meaningful learning experiences, the University Learning Center provides services, programs, and materials to help students develop and refine thinking skills, utilize learning and self-management skills, and learn course material more efficiently. Services include: (1) individual consultation regarding learning and self-management skills; (2) assessment of reading/learning skills, learning styles, and study habits/attitudes; (3) computer-assisted instruction for a variety of course subjects; (4) learning and self-management skills workshops; and (5) a library of materials with books, audio tapes, video tapes, and printed handouts outlining study/learning strategies.

Tutorial Services. Tutorial Services assists students to improve their learning efficiency and academic performance. Upper-class and graduate student peer tutors selected because of competence in the content area and interpersonal skills provide free tutoring primarily in mathematics, science

and foreign languages. Computer-assisted instruction and videos are available to reinforce classroom learning in math and other courses.

Supplemental Instruction (SI). Supplemental Instruction assists students in introductory courses such as BIOL 1110, CHEM 1251 and PSYC 1101 where over a third of the students typically receive a *D* or *F* or withdraw. SI leaders help students refine the unique skills necessary for doing well in each course.

Student Athletic Academic Support Services. Student Athletic Academic Support Services (236 Belk Gymnasium) provides academic and personal counseling to student athletes as a supplement to assistance provided by the Advising Center and the regular departmental advisor. Academic advisors provide prospective student athletes with information on admission procedures and academic requirements, monitor academic progress, arrange supervised study sessions, and make referrals to other campus services.

Disability Services (DS). Disability Services provides educational opportunities for persons with disabilities through accessible programs, services, and a campus environment in compliance with disability rights legislation. Services include, but are not limited to: (1) testing accommodations, (2) note taker services, (3) interpreter services for students who are deaf, (4) taped textbooks, Braille and/or enlarged print for visually impaired students, (5) class relocation, (6) assistive technology loans, (7) priority registration, and (8) adaptive furniture.

Assistive technology is available to students with disabilities in the Disability Services Office, centralized computer labs, and the Atkins library. In accordance with State law, service animals assisting students with disabilities are permitted to all facilities on campus. DS does not provide prescriptive devices, devices of a personal nature, or personal attendant care.

The Disability Services Office also serves as a resource to faculty, staff, and the University community by providing consultation and advocacy services on issues related to compliance with the Americans with Disabilities Act of 1990.

Student Support Services. Student Support Services is a federally funded program that provides intensive academic, personal, and career counseling, tutorial assistance, and mentoring to low income and first generation college students or students with a disabilities.

McNair Post-Baccalaureate Achievement Program. This federally supported program is designed to increase the number of low-income and first generation college students who earn doctoral degrees and teach in colleges and universities. Pairing mostly juniors and seniors with faculty mentors to work on research projects, the program introduces students to the rigors, both academic and emotional, of graduate study.

Minority Academic Services (MAS), in the division of Academic Affairs, is committed to providing quality academic support services to increase the retention and graduation of minority students at UNC Charlotte. MAS provides academic advising to minority freshmen and sophomores primarily through three programs: SAFE, UTOP, and PRODUCE. In addition, academic intervention is conducted with minority transfer students through TRACE. MAS also serves other minority students, some of who are experiencing chronic academic difficulties, by referring them to other University academic support programs that meet their specific needs.

Producing Readiness of Diverse University Cohorts in Education (PRODUCE). UNC Charlotte is one of the eight schools in the University of North Carolina system that has received a National Science Foundation Grant to: (1) improve the quality of the learning environment for minorities in science, mathematics, engineering and engineering technology; (2) increase the number of minority students graduating with degrees in science, mathematics, engineering and engineering technology; and (3) develop and implement effective techniques of attracting talented minority students who would otherwise not choose science or engineering as a career.

Student Advising for Freshman Excellence (SAFE). The goal of SAFE is to facilitate the transition from high school to college of all incoming African-American freshmen. Through orientation sessions, student advising, individual and group tutoring, co-curricular and social activities, and weekly meetings with student counselors, SAFE empowers students to acquire the skills necessary for academic success and the establishment of rewarding careers. Some students are eligible to participate during the sophomore year.

University Transition Opportunities Program (UTOP). UTOP is a summer academic program designed to facilitate the minority student's transition from high school to the University by involving a limited number of incoming freshmen in a rigorous collegiate experience prior to fall semester enrollment. Seven hours of credit are awarded for successful completion of UTOP coursework, which consists of English Composition, Supplemental English, and Freshman Seminar.

Transfer Resources for Advancing the College Experience (TRACE). TRACE assists minority transfer students in making a smooth transition into UNC Charlotte by identifying campus resources, providing academic support and acting as advocates. The TRACE program provides services related to orientation, retention, career advisement, academic advising, and learning assistance.

Office of Adult Students and Evening Services (OASES) serves as a liaison with academic departments, advising centers, and administrative offices for students who need to conduct business after 5 p.m. on Mondays through Thursdays and on Saturdays 9 a.m. to 3 p.m. (when classes are in session). Activities and programs include advising in the evening, re-entry open houses, weekend orientations, scholarships, the Alpha Sigma Lambda Honor Society, the Non-Traditional Student Organization (NTSO), and a newsletter, "For Adults Only." For adults returning to school after an extended absence, OASES provides information about the admissions process and opportunities available through the Adult Students Admission Program (ASAP).

University Writing Programs (UWP) consists of three programs: Faculty development, the Writing Resources Center, and the UNC Charlotte site of the National Writing Project. UWP brings together interests, needs, and resources related to writing across the University. Through faculty development initiatives, UWP provides 1) faculty and departmental workshops on writing and assessment issues, 2) networking opportunities, and 3) the annual Wildacres' retreat held each May.

Through the **Writing Resources Center,** assistance is provided primarily for undergraduates and graduate students who want to become more effective writers. The center is staffed by graduate and undergraduate writing consultants who work with writers at all stages of the writing process: prewriting, focusing, organizing, revising, and editing. Programs include one-on-one and group consulting; on-line writing consultants for distance education students; classroom presentations; and library and internet research.

The Writing Project (WP) focuses on developing K-12 writing teachers using three interconnected components that are based on the National Writing Project model: 1) the summer invitational institute, 2) continuity programs for teacher consultants in the project, and 3) inservice programs with local school districts. The WP offers inservice teacher training as well as opportunities for K-12 teachers to conduct classroom-based research. Working in conjunction with the College of Education, the WP provides leadership in teacher training.

Office of International Programs (OIP). The Office of International Programs serves as a focal point for UNC Charlotte's international dimension by providing leadership and assistance in the areas of international admissions, curriculum development, international student/scholar services, education abroad, overseas linkages, English language training, cross-cultural training, and community programming.

International Admissions (IA). International Admissions is responsible for marketing UNC Charlotte to the world. The primary focus is increasing the enrollment of students on non-immigrant visas. IA processes applications, evaluates credentials, makes admissions decisions, and serves as consultant to prospective students, academic advisors, sponsors, and agencies representing international students.

Education Abroad. UNC Charlotte encourages its students to study and live in a foreign country as a part of their academic careers. The Office of Education Abroad offers students the opportunity to study or work abroad for a year, a semester, or a summer. Programs are available in countries virtually all over the world. Deadlines for application for fall semester or year-long programs are in January, deadlines for spring semester programs are in September or October, and deadlines for summer programs are generally in March or April. Contact the Office of Education Abroad for program information.

Faculty Development. The Office of International Programs serves as a facilitator for faculty exchange opportunities. Faculty are encouraged to work with the Associate Vice Chancellor for International Programs in exploring and applying for a wide range of international exchanges. Among those are the Fulbright Exchange Program, reciprocal department exchanges, and exchanges based on agreements between UNC Charlotte and overseas institutions of higher learning. Faculty and administrators also are able to take advantage of OIP's professional development program. This program provides opportunities for the further enhancement of international interests through travel for international study and research and faculty colloquia on international topics.

International Student/Scholar Office provides services in the areas of immigration, campus and community orientation, and cultural adjustment. The staff serves as a liaison to other campus offices on related matters and provides programs that enhance the student and scholar's learning experience including Conversation Partners, the Host Family Program, advising of international student clubs, and cross-cultural training workshops.

Campus Programming. Various events are sponsored independently and in cooperation with other departments and agencies. They include the annual International Festival, dinners featuring specific cultures, the Education Abroad Fair, Summer Institutes, and the chapter office of Phi Beta Delta Honor Society for International Scholars.

The English Language Training Institute (ELTI) provides intensive English as a Second Language instruction for international students planning to attend American universities or colleges in the United States. ELTI holds three sessions per year--fall, spring, and summer--and offers seven language proficiency levels. Average class size is 12 students and students attend classes 20-24 hours per week. Exceptional students in Levels 6 and 7 are eligible to take University courses in addition to their English classes. ELTI also offers a communications course for international teaching assistants and consulting for international faculty at UNC Charlotte.

Public Service. The OIP seeks to initiate and respond to the international needs and interests of the community. Current programs include: (1) *Community Forums*--symposia on topics of current international interest; (2) *Great Decisions*--an annual series of lecture/discussions during the months of February and March on key policy issues; (3) *Cross-Cultural training,* individually designed workshops that focus on appreciation for other cultures and development of skills in effective communications across cultures; (4) *Intercultural Outreach Programs* offers custom designed, short term training programs for international groups. These programs may include English language training, American cultural themes, specialized professional development in any field, site visits and internships in the community, and a variety of cultural experiences tailored to meet the objectives of the group; and (5) *Japan-America Society*, a university-community joint venture to enhance understanding of Japan and U.S.-Japan relations.

The University Career Center offers comprehensive career services designed to assist undergraduate and graduate students in all stages of career development: career decision making, career planning, and career placement. Experiential learning is a key component and all students are encouraged to take advantage of internship, cooperative education, and

other career exploration programs. With the University Career Center acting as a coordinating and academic support unit for experiential learning, over 62% of all students at UNC Charlotte participate in a University-sanctioned career-related experience.

The goals of the Center are: to help all students make and act on career decisions that maximize their potential and long term development; to enable the timely involvement of students in experiential learning programs; to engage students, faculty, and employers in quality experiential learning programs; and to promote receptivity to and involvement with UNC Charlotte, the colleges, and the students among individuals and organizations outside the University. The Center maintains relations with over 1,000 area and national employers, and also has developed co-op and 49ership programs abroad. Over 10,000 jobs and internships are handled through the office each year.

Services provided by the Center range from individual *career counseling and advising*, resume and cover letter critiques and videotaped mock interviews to small group workshops on such topics as resume writing, effective interviewing, uncovering the hidden job market, and preparing for the transition into the work world. Other services include resume referrals to employers, on campus interviewing, career exploration through various experiential learning programs and events, a career resource collection, and seven major job fairs annually. Students can participate in co-ops, internships, job shadowing and 49erships, which are arranged though the University Career Center. The majority of services can be accessed and utilized through 24-hour online capability via our web site http://www.uncc.edu/career. The staff also presents programs in classrooms, residence balls and for student organizations. Each semester, a newsletter is publisbed to inform students about workshops, programs, and employers recruiting on campus. Students are encouraged to visit the Center and to start their experiential learning program and career planning in their freshman year or first semester at the University. The University Career Center has received national recognition for its "state-of-the-art" program initiatives.

Part-time Employment Off-campus. The University Career Center's Job Location and Development (JLD) Program assists students in obtaining part-time, summer, and temporary employment off-campus. Some full-time jobs that do not require a degree are also listed. Job listings may be viewed online at http://www.uncc.edu/career. The jobs include career-related positions in various fields such as education, business, entertainment, engineering, and health-care. The JLD Program is available to help students to earn money for their academic and personal expenses during their enrollment at the University.

The Office of the **Associate Vice Chancellor for Research** provides direction and leadership for the development of research and creative activity at the University and the infrastructure that supports those activities. The Associate Vice Chancellor coordinates federal and congressional relations and oversees three support offices, the Office of Proposal Development, the Office of Research Services, and the University Vivarium.

The **Office of Proposal Development (OPD)** works closely with faculty and funding agencies to identify opportunities for proposal development, facilitate the formation of proposal teams, and provide a wide range of services to help faculty achieve their research goals, including identification of funding sources, general consultation on writing and funding strategies, and proposal editing.

The **Office of Research Services (ORS)** provides services for the review and submission of proposals to funding agencies, including the interpretation of guidelines, preparation of budgets, and mailing and tracking of proposals, as well as post-award management support. ORS coordinates research-support efforts with college research officers and is responsible for federal compliance.

The Chimney Rock Park Field Station is located in the Blue Ridge Mountains, 30 miles southeast of Asheville. The University has an agreement with Chimney Rock Park to investigate the biological, geological and cultural features of the 800-acre park. Area available for study extends from the Broad River at the bottom of Hickory Nut Gorge to the top, a vertical climb of over 1,500 feet.

The UNC Charlotte Experimental Ecological Reserve is a 100-acre tract of land set aside on campus by the UNC Charlotte Board of Trustees as a permanent ecological reserve for use as an outdoor classroom and laboratory. The reserve includes a floodplain forest, pine stands, mixed pine-hardwood forest, and a relatively undisturbed 10-acre watershed of oak-hickory forest.

The UNC Charlotte Rocky River Wildlife Refuge is a 46-acre natural area located east of Charlotte in Stanly County. Its purpose is to preserve the natural features of the area and allow research and field trips to study the plants and animals within the North Carolina slate belt formation.

The UNC Charlotte Botanical Gardens, located on campus, consist of the McMillan Academic Greenhouse, the Van Landingham Rhododendron Glen, and the Susie Harwood Ornamentals Garden. Begun in 1966, these gardens combine indoor and outdoor facilities for teaching, research and public display of a wide variety of native and exotic plants. The outdoor gardens are open seven days a week, and the greenhouses are open Monday through Saturday. Students and the public are invited to visit, free of charge.

STUDENT AFFAIRS AND SERVICES

The University of North Carolina at Charlotte provides a comfortable and enjoyable environment for students that is conducive to study. The services, facilities, and programs of the University promote individual student development and foster a community which promotes the involvement of students in their intellectual, cultural, spiritual, emotional, and physical development.

The Bonnie E. Cone University Center serves as the hub of activity for informal gatherings and social and educational activities on campus and provides an attractive, comfortable place for relaxation and study. Services and facilities include a variety of meeting rooms and multi-purpose spaces, the Multicultural Resource Center, art

galleries, an information desk and music listening/TV Lounge, the Candy Shoppe, Creation Station (signs, banners, balloons, etc.), Campus Event Information Office, and Technical Services. A variety of activities, including concerts, movies, lectures, and banquets, are provided.

Also located within Cone University Center are Offices of Student Government, Student Media and Student Media Marketing, Black Student Union, Campus Activities Board, Resident Student Association, Graduate Student Association, Venture Program, Office of Student Activities, Student Activity Fees Commission, I.D. Office, Food Services and Conferences, Reservations, and Event Planning Services (located in the administrative offices of the University Center).

The I.D. Office is co-located with the Dining Services Office adjacent to the Main Street Market cafeteria in Cone University Center. It is open 8 a.m. to 6 p.m. Monday through Thursday and 8 a. m. to 5 p.m. Friday.

After Hours (Cone Center) and **The Rathskeller** (Residence Hall Cafeteria) can be reserved for dances and other events. The Campus Activities Board (CAB) and Campus Programs offer a wide variety of entertainment, including name musical and novelty acts, lectures, movies, minority programs, women's programs, and children's programs.

The Bookstore offers new and used textbooks, non-required special interest and gift books, school supplies, computer software, greeting cards, gifts, and insignia clothing items. Services include "pre-packs of textbooks" specially designed for freshmen and special ordering of books not carried in stock.

University residence halls, suites, and apartments offer students a variety of living arrangements. Two high-rise residence halls house two students in each room for a total of approximately 500 students, while two other high-rise buildings house 250 students, all in single rooms. Each room is equipped with built-in dressers, study desks, chairs, and closets. Each floor has a central lounge, plus study and seminar rooms. Two elevators service each air-conditioned building. Each building also contains an office for the full-time professional staff (Residence Coordinator), student mail boxes, a concessions area, a lounge, and a laundry room. A meal service contract is required in the high-rise residence halls.

In the majority of suite housing, two students share a double room and four students share a bath and a den area. A very limited number of suites are available in Squires Hall that house either two or four students but all in private bedrooms. All buildings housing this lifestyle also requires a meal service contract - except Squires Hall.

On-campus apartments offer students a more private living environment and require a more self-reliant lifestyle. Each apartment is a four-bedroom unit, with one student assigned to each bedroom. The four students share a bathroom area and kitchen complete with cooking facilities and living/dining space. A meal plan is optional, allowing students the experience of buying and preparing their own food, if they so desire. (***Note: freshmen are not eligible for the apartment lifestyle.***)

Several options are available for summer housing. For information, contact the Housing and Residence Life Office.

Students who plan to live on campus should apply as soon as possible, as assignments are made according to date of receipt of contract. An application for housing will be sent to the entering student who requests one following his or her final admission to the University. A $100 deposit is required when the application is returned to the Associate Vice Chancellor and Director of Housing and Residence Life.

Housing facilities designed specifically for students in wheelchairs are available. Wheelchair students who receive confirmation of residential space have priority in assignment to these facilities *as long as the University is able to offer space.* It is extremely important that the housing application is received before all space is committed so that this priority for assignment to appropriate facilities can be exercised. Wheelchair students may be considered for priority status on the waiting list on the basis of (1) the date of application and (2) the degree of utilization of wheelchair-equipped facilities as compared to the proportion of wheelchair students who apply.

Assignment to a disability accessible housing space requires documentation of the disability and special needs in accommodations by the Disability Services Office. Documentation must be provided to Disability Services when the housing application is submitted and no later than June 1.

The University does not assume any responsibility for the provision of attendants for students with disabilities. Such arrangements are entirely the responsibility of the individual student and should be established well in advance of the time the services are to begin.

Dining Services. Resident students living in Sanford, Moore, Holshouser, Scott, Hawthorn, Hickory, Cedar, Sycamore, Oak, and Poplar Suites **must** have a dining service contract. Freshmen may choose from one of several Traditional Meal Plans especially designed to meet their needs. Upper-classmen living in Sanford, Moore, Holshouser, Scott, Hawthorn, Hickory, Cedar, Sycamore, Oak and Poplar Suites may select any of the Traditional Meal Plans or Declining Balance Meal Plans designed for students living in these areas. Traditional Meal Plan meals are offered in the Resident Dining Hall (RDH) or the Crossroads Café. Declining balance plans can be used as cash at any dining services facility on campus.

A current list of meal plan options may be obtained from the Dining Services Office (Cone Center) or the Meal Plans, 49er Card, and Insurance Office located in the Auxiliary Services Building.

During the period of occupancy, UNC Charlotte will provide meals according to the plan selected except that no meals are provided during fall break, Thanksgiving break, winter break, and spring break.

Dining service contracts are binding for one semester. Cancellations can only be made under special circumstances

(e.g., withdrawal from the University or moving to an on-campus apartment) and only upon the approval of the Office of Meal Plans, 49er Card, and Insurance. Students may make meal plan changes during the registration period, which lasts through the first day of classes. The first change will be at no charge, an administrative charge of $25 will be accessed for each subsequent change. Students living in required areas, Sanford, Moore, Holshouser, Scott, Hawthorn, Hickory, Cedar, Sycamore, Oak and Poplar Suites, may make changes again during the two days of housing room change on a pro-rata basis. **No other changes may be made after this time, unless the student moves from required housing.** Students living in apartments and off-campus may make changes and cancellations on a pro-rata basis until fall/spring breaks. **NO CHANGES OR CANCELLATIONS MAY BE MADE AFTER FALL/SPRING BREAKS.** (Exceptions must be approved by the Dining Services Administrator.) All changes and cancellations must be made in the Meal Plans, 49er Card and Insurance Office, 162 Auxiliary Services Building, or by calling 704-687-2138 or 2139.

Resident students in apartments and commuter students may purchase any of the Traditional or Declining Balance Meal Plans. These students may also elect to purchase Optional Declining Balance from the University's Dining Services contractor using credit card, cash, or checks. A minimum initial deposit of $25.00 is required to open an account.

Anyone may purchase individual meals at either of the boarding cafeterias (RDH and Crossroads Café). Vending machines are located throughout the campus, and several locations have microwave ovens for heating items.

The Counseling Center provides both individual and group services and programs to assist in personal growth, career development and personal adjustment problems. Staffed by psychologists and counselors, the Counseling Center offers services to students, faculty and staff. Initial counseling appointments may be arranged in Room 158 of the Atkins Building. Information between an individual and his/her counselor is confidential in accordance with guidelines established by the American Psychological Association.

Individual counseling is provided to help a person develop better coping strategies, resolve conflict, and handle crisis situations. Groups are also offered each semester that teach a skill or focus on a particular theme. Career counseling guides the exploration of interests, work values, and abilities through individual counseling sessions, career exploration groups, utilization of the Career Resource Library, and the SIGI Plus computer-assisted career guidance system. Administration of career interest inventories, personality surveys, and achievement tests provide an additional method of self-exploration for students.

Outreach and consultations are vital functions of the Counseling Center. Staff members are available to consult with faculty, staff, and student organizations on topics such as enhancing communication, improving the learning environment, and helping the problem student. Outreach activities include programs conducted outside the Counseling Center to meet the needs of a group or organization. These programs usually focus on personal development or career development.

The Brocker Health Center provides a range of outpatient medical care to all students. In addition to basic services, the Center houses a pharmacy, medical facilities for laboratory, X-rays and allergy injections, and a physical therapy department. Other services include specialized clinics for orthopedics, gynecology, podiatry, and HIV screening. UNC Charlotte Student Health Services are accredited by the Joint Commission on Accreditation of Healthcare Organizations.

Brocker Health Center is fully operational from 8:00 am to 5:00 pm, with physicians and support staff on duty Monday through Friday. Appointments are recommended, but a walk-in clinic is available from 8:00 am to 4:00 pm.

Seriously ill students and emergencies are referred to local hospitals or other appropriate medical facilities. Students and parents are urged to review their insurance plans to be sure that they have adequate coverage for emergency treatment or hospitalization. The University does not provide health insurance for students. Information about private insurance coverage is mailed to all students during the summer and is available at the Health Center or Auxiliary Services.

Students coming to the Health Center must present their current University identification card. The student health fee covers most of the cost for services at the Health Center; however, additional fees are charged for X-ray, pharmacy, laboratory, and orthopedic services. Fees for service may be transferred to the student's University account. Fees are subject to change. For more information, visit the Health Center or telephone 704-687-4617.

The Student Employment Office (101 King Building) assists students in locating work on campus. The University participates in the federal Work-Study Program and attempts to match students with jobs related to their academic interests. Students are encouraged to limit employment hours to allow for success in a full 15-18 hour course load each semester.

OUTREACH: THE UNIVERSITY AND THE COMMUNITY

The University recognizes that its mission reaches beyond the borders of the campus to the surrounding region and the state. The University touches many facets of community life and serves as a catalyst for development of a regional approach to solving problems in education, economic development, transportation, the environment, cultural amenities, and the quality of life. Faculty, staff, and students have made significant impact on the region through research, historic preservation, planning, the arts and literature, and the delivery of government and social services.

The Office of Alumni Affairs, located in the Alumni House on Highway 49, serves as the liaison between the University and all graduates. The Director of Alumni Affairs is the chief administrative officer, coordinating activities of the office of Alumni Affairs and carrying out the objectives, goals, and policies of the Alumni Association.

The Alumni Association's primary purpose is to involve alumni in the promotion, advancement, and support of the mission of UNC Charlotte and to develop and stimulate a continuing interest in our *Alma Mater* by providing opportunities for service, fellowship, and loyalty. A 32-member Board of Governors, elected by the active membership, establishes policy of the Alumni Association and assists in the planning and implementation of projects, events, and programs. Active members of the association are those alumni who contribute to the University or the UNC Charlotte Foundation.

Programs of the Alumni Association include the Alumni Awards Banquet, regional and collegiate chapters, homecoming activities, networking socials, public affairs events, reunions, merchandising opportunities, group travel, athletic support, recognition of outstanding seniors, and sponsorship of the Student Alumni Ambassadors. Alumni have the opportunity to support academic excellence through the Chancellor's Club, which annually provides Alumni Scholarships for Merit to three students at the University.

The Alumni Office seeks to maintain lifelong contact with all graduates. Graduates are encouraged to become active in the Alumni Association and to notify the Alumni Affairs Office of address changes, employment information and other significant events, such as marriages, births and Honors. In this way, adequate records can be maintained, and the Alumni Affairs Office can publish news about graduates in the *University Magazine*. The address is Alumni Affairs Office, Alumni House, UNC Charlotte, 9201 University City Blvd, Charlotte, NC 28223; telephone 704-687-2273 or, for those outside Mecklenburg County, 1-800-PIK-UNCC; fax 704-687-3962; email alumni@email.uncc.edu; internet http://www.uncc49er.net.

The Ben Craig Center, located in the University Research Park, is a non-profit incubator associated with UNC Charlotte. Its mission is to foster entrepreneurship in the Charlotte region. The Center accomplishes its mission by combining office infrastructure, consulting services, and a network of business contacts to create a program that accelerates a business's growth.

The Office of Continuing Education, Distance Education/Extension, and Summer Programs. Recognizing that learning must be a lifelong activity, the University provides opportunities for adults to pursue their continuing education through degree-related studies and special non-credit programs.

Non-credit short courses, seminars, workshops, and conferences for adults are offered through *Continuing Education*. Specific programs are provided each year for the continuing professional education of accountants, architects, managers in the public and private sectors, engineers, nurses, psychotherapists and counselors, teachers and other school personnel, information specialists, and elected public officials. Special lectures and forums also are offered in the arts, sciences, humanities, and public policy for the personal enrichment of all interested citizens.

Through *Distance Education/Extension*, courses for academic credit are offered at off-campus sites to serve citizens who live beyond easy commuting distance from the campus. Options for delivery include sending a UNC Charlotte faculty member to a remote location to teach a course in person, using one of two state-wide interactive video networks to link a UNC Charlotte faculty member on the campus in Charlotte with students attending class at remote locations throughout the state, and transmitting instruction via the Internet. The two video networks currently utilized by UNC Charlotte are the North Carolina Information Highway (NCIH) and the microwave network maintained by the Microelectronics Center of North Carolina (MCNC). In addition, the University has the ability to deliver educational programming over Cable Channel 22, which is the channel reserved for the University by the local cable service.

During the summer, the office schedules a variety of credit and non-credit programs, including academic enrichment camps for youth, on the campus and at approved off-campus sites.

Contact the Office of Continuing Education, Distance Education/Extension, and Summer Programs at 704-687-2424 for specific information about its programs.

The Office of University Development. Known traditionally as a "state-supported institution," UNC Charlotte is more accurately a "state-*assisted* institution," as the University depends on non-state resources for more than half of its operating needs. For this reason, philanthropy is critically important. Indeed, it provides the critical margin of excellence so that the University can fulfill its threefold mission of education, research and public service.

The Office of University Development plays a vital role by securing philanthropic support for the University, particularly through the establishment and enhancement of relationships with the University's alumni, parents, and friends, including corporations, foundations, and organizations. The support can take many forms, such as gifts of cash, appreciated securities, real estate, equipment, and works of art. The Office of University Development is lead by Laura C. Simic, CFRE, Associate Vice Chancellor for Development.

The Foundation of The University of North Carolina at Charlotte was founded in 1960 and has had from its inception the goal of undergirding the University and assisting it in the quest for excellence. To accomplish its goals, the Foundation invites private contributions.

The Office of Public Relations, located in the Reese Building, is the official communications channel through which the University disseminates information to its various publics. The Office has three major functions: (1) external media relations; (2) internal communications; and (3) official University publications that are distributed to off-campus

audiences. The Office distributes news and feature stories about University programs and its people, as well as hometown releases about achievements of students. A weekly newsletter, *Campus News,* informs faculty and staff about campus activities. An external newsletter, *UNC Charlotte Today,* reaches elected officials and business leaders in North Carolina. The Office maintains the University's Home Page on the World Wide Web and provides assistance in printing official publications for University departments. The Office also publishes the official University Magazine.

The UNC Charlotte Urban Institute develops and supports programs that give impetus to the University's urban mission. The Institute is a catalyst for projects designed to meet the applied research needs of urban and developing areas of the Charlotte Metropolitan region. It also provides administrative and technical support to organizations involved with issues of an urbanizing society. Projects are initiated by members of the faculty, community clients or the Institute staff and focus on a broad spectrum of urban topics, e.g., local government, the environment, land use, business assistance and economic development. Students may become involved in Institute projects as part-time research assistants or interviewers, or they may become involved with the Institute in conjunction with course work or degree requirements by writing term papers, graduate theses, or completing internships. The Institute's program areas are:

Carolinas Land Conservation Network is a membership organization open to agencies and individuals who have an interest in the conservation of land in the central piedmont region of the Carolinas. The program maintains an information base of conservation initiatives in the region and implements research and educational activities relating to broadening the community's understanding of the importance of conservation efforts.

Community Research and Service conducts needs assessments and public opinion surveys of both target and general populations focusing on issues of concern to local, regional, and national clients. The program also provides support to government and community agencies in the planning and implementation of special projects and strategic planning activities.

Economic Development and Planning engages in research and planning for community, industrial and commercial development. Types of projects include land use plans, data collection and analysis for economic development, population estimates and projections, analysis of growth patterns, industrial targeting studies, housing research, and the publication of regional business and political directories.

Evaluation Research provides research and evaluation services focusing on human service programs. Impartial, third-party program evaluation is provided to decision makers in government and private organizations for use in responsible financial management and long-term decision making regarding program policy and funding issues.

Technical Services specializes in the application of microcomputer technology for public sector clients. A major, on-going project involves providing software support and training for a state-wide computerized school bus routing project. Other services include database design and desktop mapping projects for research and outreach projects.

The Center for Professional and Applied Ethics assists professionals and other clients locally, regionally and nationally in identifying, analyzing, and resolving ethical dilemmas. As a public service center, its focus is the practical and applied--not the theoretical and abstract. Its services include ethics audits, seminars, in-service education, dissemination of ethics literature, and individual or institutional consultation. On campus programs include annual seminars in business ethics, support for ethics internships, and special programming to be aired on the campus television station.

The Center for Mathematics, Science, and Technology Education works closely with southwest regional teachers and school administrators to provide professional development activities for K-12 science and mathematics teachers in the form of cognate area and methodology updating and enhancement. The Center offers academic year and summer programs of varied topics and duration, and professional contacts through science and mathematics organizations. In addition, the Center operates both a Pre-College Program, to enhance the mathematics and science academic background of middle through high school students, and a Summer Ventures Program for academically talented high school students. Contact the Center for Mathematics, Science, and Technology Education at 704-687-4838 for specific information about its programs.

UNIVERSITY REGULATION OF STUDENT CONDUCT

As students willingly accept the benefits of membership in the UNC Charlotte academic community, they acquire obligations to observe and uphold the principles and standards that define the terms of the UNC Charlotte community.

The University of North Carolina at Charlotte has enacted two codes governing student conduct. The University has also enacted a program for the prevention 10. of the use of illegal drugs and alcohol abuse. All UNC Charlotte students are obligated to be familiar with these codes and to conduct themselves in accordance with the standards set forth.

THE UNC CHARLOTTE CODE OF STUDENT ACADEMIC INTEGRITY governs the responsibility of students to maintain integrity in academic work, defines violations of the standards, describes procedures for handling alleged violations of the standards, and lists applicable penalties. The following conduct is prohibited in that *Code* as violating those standards:

A. Cheating. Intentionally using or attempting to use unauthorized materials, information, notes, study aids or other devices in any academic exercise. This definition includes unauthorized communication of information during an academic exercise.

B. Fabrication and Falsification. Intentional and unauthorized alteration or invention of any information or citation in an academic exercise. Falsification is a matter of altering information, while fabrication is a matter of inventing or counterfeiting information for use in any academic exercise.

C. Multiple Submission. The submission of substantial portions of the same academic work (including oral reports) for credit more than once without authorization.

D. Plagiarism. Intentionally or knowingly presenting the work of another as one's own (i.e., without proper acknowledgment of the source). The sole exception to the requirement of acknowledging sources is when the ideas, information, etc., are common knowledge.

E. Abuse of Academic Materials. Intentionally or knowingly destroying, stealing, or making inaccessible library or other academic resource material.

F. Complicity in Academic Dishonesty. Intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty.

A full explanation of these definitions, and a description of procedures used in cases where student violations are alleged, is found in the complete text of The UNC Charlotte Code of Student Academic Integrity. This *Code* may be modified from time to time. Users are advised to contact the Office of the Dean of Students to assure they consult the most recent edition.

THE UNC CHARLOTTE CODE OF STUDENT RESPONSIBILITY

Conduct Rules and Regulations

The following conduct, or an attempt to engage in the following conduct, is subject to disciplinary action: **[Note: Letters j, p, and u have been intentionally omitted for continuity in record-keeping.]**

A. Inflicting physical injury upon a person; placing a person in fear of or at risk of imminent physical injury or danger; committing sexual invasion, sexual assault, sexual misconduct, or sexual harassment as defined herein; inflicting severe mental or emotional distress upon a person through a course of conduct involving repeated abuse or disparagement; engaging in "fighting words" harassment as that term is defined in Policy Statement #95. The full text of this policy is available online or in the Office of the Dean of Students.

B. Using, possessing, or storing any weapon, dangerous chemical, or explosive without authorization.

C. Initiating or causing to be initiated any false report, warning, or threat of fire, explosion, or other emergency.

D. Interfering with normal University activities including, but not limited to, teaching, studying, research, the expression of ideas, University administration, speeches and other public or private events, and fire, police or other emergency services. Acts prohibited by this rule include, but are not limited to, those acts prohibited in University Policy Statement #58, "Interference with University Operations," which prohibits student action taken "with intent to obstruct or disrupt any normal operation or function of the University," and Policy Statement #96, "Conduct at Speech Events," which prohibits certain disruptive activities at speech events on campus. Full texts of both policies are available online or in the Office of the Dean of Students.

E. Knowingly violating the terms of any disciplinary sanction imposed in accordance with this Code.

F. Possessing any controlled substance or drug paraphernalia, or manufacturing, selling or delivering any controlled substance or possessing with intent to manufacture, sell or deliver, any controlled substance. Minimum penalties and certain other requirements apply where controlled substance offenses are at issue, pursuant to University Policy Statement #87, "Program to Prevent Use of Illegal Drugs and Alcohol Abuse." That policy is available online or in the Office of the Dean of Students.

G. Setting fires, or misusing or damaging fire safety equipment or elevators.

H. Furnishing false information to the University or a University official; misrepresenting or concealing one's organizational affiliation(s) or sponsorship(s) for the purpose of enticing another person into joining or participating in a group or organization.

I. Forgery, unauthorized alteration, or unauthorized use or misuse of any document or instrument of identification (ID); displaying or using an ID that is not one's own or is fictitious, canceled, revoked, suspended, or altered; counterfeiting, loaning, or selling an ID to another person not entitled thereto.

K. Theft or attempted theft of property or services, the unauthorized use or access to private or confidential information in any medium, possessing stolen property; or possessing property that is not your own without owner authorization.

L. Destroying or damaging the property of others or University property.

M. Failing to comply with the reasonable directions of University officials, including but not limited to campus police officers or Residence Life Staff, acting in performance of their duties.

N. Violating published University regulations or policies, as approved by the Vice Chancellor for Student Affairs. Such regulations or policies include but are not limited to the residence hall contract, as well as regulations relating to entry and use of University facilities, use of vehicles and amplifying equipment, campus demonstrations, and misuse of identification cards.

O. Possessing, consuming, or distributing alcoholic beverages without University authorization including but not limited to possessing or consuming alcoholic beverages by students below the legal minimum age; displaying or consumption of alcoholic beverages in campus residences by students less than twenty-one years of age; furnishing, or selling any alcoholic beverages to any person not of sufficient legal age to possess or consume such alcoholic beverage; failing to abide by the provisions of an Acknowledgment of Responsibility for Service of Alcoholic Beverages form; or making any sale of any alcoholic beverage on the University campus. (The full text of University Policy Statement #57, "Alcoholic Beverages," is available online or in the Office of the Dean of Students.)

Q. Being present in or using University premises, facilities, or property without University authorization.

R. Using or possessing fireworks on University premises or at University activities without University authorization.

S. Engaging in disorderly conduct such as fighting, threatening behavior, public disturbance, intentionally committing acts that disrupt or interfere with the normal functions of a class, or drunk and disorderly conduct.

T. Causing or permitting a person, in relation to membership in a society, club or similar organized group (whether or not recognized by the University), to participate in any activity that subjects that person or others to unnecessary risks of physical injury or extreme mental distress, whether or not such person has consented to participation in the activity. The full text of University Policy Statement #83, "Hazing," is available online or in the Office of the Dean of Students.

V. Engaging in computer abuse, including but not limited to: unauthorized use of or tampering with the operation of any University computer system including hardware and software; inspecting, modifying, or copying programs or data in University owned or controlled computing facilities without authorization or for purposes other than that for which authorization was given; disrupting or interfering with legitimate use of University computing systems by authorized users; using or copying any University software except as permitted under license; using University computing facilities to use or copy any software except as permitted under license; or violating University Policies # 66 or 67 on computer and software use. (The full text of University Policy Statements #66, "Responsible Use of University Computing and Electronic Communication Resources," and #67, "Proprietary Software," are available online or in the Office of the Dean of Students.)

W. Gambling for money or other things of value except as allowed by law. Prohibited gambling includes, but is not limited to, betting on, wagering on, or selling pools on any University athletic event; possessing any card, book, or other device for registering bets, or bookmaking in connection with betting.

PROGRAM TO PREVENT USE OF ILLEGAL DRUGS AND ALCOHOL ABUSE (POLICY #87)

General. In keeping with efforts to maintain an environment that supports and encourages the pursuit and dissemination of knowledge, it is the policy of The University of North Carolina at Charlotte to consider the use of illegal drugs or alcohol abuse by students, faculty and staff or by others on premises under University control to be unacceptable conduct that adversely affects the educational environment.

Further, the University considers a sound awareness, education, and training program indispensable in combating illegal use of drugs and alcohol abuse, both as a preventive measure and as a remedy. The scope of the University program addresses the awareness needs of students, faculty, administrators, and other staff members and includes the following minimum components.

- The health hazards associated with the use of illegal drugs and with alcohol alone.
- The incompatibility of the use of illegal drugs or abuse of alcohol with maximum achievement of personal, social, and educational goals.
- The potential legal consequences (including both criminal law and University discipline) of illegal drug abuse.
- The effective use of available campus and community resources in dealing with illegal drug abuse and alcohol abuse problems.

Responsibilities: It is the responsibility of all students, faculty, and staff to conduct themselves in such a way as to contribute to an environment free of illegal drug use and abuse of alcohol. Also students, faculty, and staff are responsible, as citizens, for knowing about and complying with the provisions of North Carolina law that make it a crime to possess, sell, deliver, or manufacture those drugs designated collectively as "controlled substances" in Article 5 of Chapter 90 of the North Carolina General Statutes.

The Health Educator and the Assistant Director of Personnel for Training and Employee Relations are responsible for designing and carrying out a comprehensive program of awareness education and training for students, faculty, and staff on the subject of preventing the illegal use of drugs and abuse of alcohol. The Substance Abuse Prevention Committee will provide guidance and support to their efforts, which will be coordinated through the Vice Chancellor for Student Affairs as Coordinator of Drug Education.

The Director of the Counseling Center shall, within the limits of available resources, provide services and programs to students, faculty, and staff seeking assistance with problems of illegal drug use or alcohol abuse. Counseling Center services to faculty and staff are available under the University's Employee Assistance Program (EAP). In cases where the treatment needs of such students, faculty, and staff exceed the resources of the Center, the Center shall provide referral to appropriate facilities in the community.

Collaboration with Community Resources. The University's program emphasizes collaboration with local resources such as the Charlotte Drug Education Center, Council on Alcoholism and Chemical Dependency, Mecklenburg County Substance Abuse Services, Charlotte Treatment Center, Open House, Inc., Alcoholics Anonymous, Al-Anon, etc. To this end, the University shall participate in the Mecklenburg Coalition on Substance Abuse and will establish a local advisory board to further collaborate between the University and the Charlotte Community.

Education and Prevention Activities. The University's institution-wide awareness, education, and training efforts stress prevention. The goal of these efforts is (1) to encourage non-users of illegal drugs and alcohol to continue to be non-users, (2) to encourage users of alcohol to do so responsibly, and (3) to encourage users of illegal drugs to stop.

Illegal Use of Drugs and Abuse of Alcohol. The use of illegal drugs and the abuse of alcohol are considered by the University to be problems that can be overcome. Therefore, the educational and rehabilitative services mentioned above are available on a confidential basis. However, the possession, sale, delivery, or manufacture of illegal drugs will not be tolerated on campus or off campus in the event that the interests of the University may be affected. The University will cooperate fully with law enforcement agencies and will apply appropriate disciplinary processes should a student, faculty member, or staff member violate criminal statues with regard to illegal drugs. Violations subject a student, faculty member, or staff member to prosecution and punishment by civil authorities and to disciplinary action by the University. It does not constitute "double jeopardy" for the University to initiate its own disciplinary proceedings for the same offense when the alleged conduct is deemed to affect the interests of the University.

Disciplinary procedural safeguards applicable to one's status as a member of the University community will be followed. These are described in the following documents:

Status	Document
Students	*UNC Charlotte Code of Student Responsibility*
SPA Staff	*State Personnel Manual*
EPA Staff	EPA Non-Faculty Personnel Policy
Faculty	Section 603 of the *UNC* Code and *Section 6* of *UNC Charlotte Tenure Document*

Minimum sanctions described below in the Policy would also apply to employees who do not fall in any of the categories above. In the event a student is also an employee of the University, the minimum sanctions for employment as well as student status would apply.

The use of illegal drugs may lead to a variety of sanctions, from written warnings with probationary status to expulsion from enrollment or discharge from employment. However, in accordance with the Policy on Illegal Drugs adopted by the Board of Governors from the University of North Carolina, the following minimum penalties shall be imposed for the particular offenses described.

Trafficking in Illegal Drugs

1. For the illegal manufacture, sale, or delivery, or possession with intent to manufacture, sell, or deliver, of any controlled substance, identified in Schedule I, N.C. General Statutes 90-89, or Schedule II, N.C. General Statutes 90-90 (including, but not limited to, heroin, mescaline, lysergic acid diethylamide, opium, cocaine, amphetamine, and methaqualine), any student shall be expelled and any faculty member or staff member shall be discharged.

2. For a first offense involving the illegal manufacture, sale, or delivery, or possession with intent to manufacture, sell, or deliver, of any controlled substance identified in Schedules III through VI; N.C. General Statutes 90-91 through 90-94, (including, but not limited to, marijuana, pentobarbital, and codeine) the minimum penalty shall be suspension from enrollment or from employment for a period of at least one semester or its equivalent. For a second offense, any student shall be expelled and any faculty member or staff member shall be discharged.

Illegal Possession of Drugs

1. For a first offense involving the illegal possession of any controlled substance identified in Schedule I, N.C. General Statutes 90-89, or Schedule II, N.C. General Statutes 90-90, the minimum penalty shall be suspension from enrollment or from employment for a period of at least one semester or its equivalent.

2. For a first offense involving the illegal possession of controlled substance identified in Schedule III through VI, N.C. General Statutes 90-91 through 90-94, the minimum penalty shall be probation, for a period to be determined on a case-by-case basis. A person on probation must agree to participate in a drug education and counseling program, consent to regular drug testing, and accept such other conditions and restrictions, including a program of community service, as the Chancellor or the Chancellor's designee deems appropriate. Refusal or failure to abide by the terms of probation shall result in suspension from enrollment or from employment for any unexpired balance of the prescribed period of probation.

3. For second or other subsequent offenses involving the illegal possession of controlled substances, progressively more severe penalties shall be imposed, including expulsion of students and discharge of faculty members or staff members.

Suspension for a Minimum Period of "One Semester or its Equivalent." This logically may be interpreted to mean, in the case of a student, forfeiture of at least one full semester of academic credit or attendance; this may be accomplished either (1) by suspending the student for the unexpired balance or the semester during which guilt is determined, with attendant loss of all academic credit for that semester, or (2) by placing the student on probation for the unexpired balance of the semester during which guilt is determined and suspending the student for the duration of the next succeeding semester; in the case of a faculty member or staff member, it may be interpreted to mean forfeiture of pay for a period of 18 weeks. Since the current State Personnel Act specifies that disciplinary suspensions cannot exceed three days, offense for which an 18-week minimum suspension is required by the Board of Governor's policy will result in discharge of an employee subject to the State Personnel Act.

Suspension Pending Final Disposition. When a student, faculty member, or staff member has been charged by the University with a violation of policies concerning illegal drugs, he or she may be suspended from enrollment or employment before initiation or completion of regular disciplinary proceedings if, assuming the truth of the charges, the Chancellor or, in the Chancellor's absence, the Chancellor's designee concludes that the person's continued presence within the University community would constitute a clear and immediate danger to the health or welfare or other members of the University community; provided, that if such a suspension is imposed, an appropriate hearing of the charges against the suspended person shall be held as promptly as possible thereafter.

References. The use of alcoholic beverages on the University campus is regulated by Policy Statement #57, "Policy on Alcoholic Beverages." Policy Statement #62, "Employee Assistance Program," establishes a free employee assistance service as part of the University Counseling Center.

IMMUNIZATION REQUIREMENTS

North Carolina state law requires all students entering a college in the state to meet the immunization requirements specified in the table on the following page. A family physician or the Health Department must verify that the student has the necessary immunizations. UNC Charlotte's *Report of Medical History* form, provided by the Office of Undergraduate Admissions or available at http://www.uncc.edu/health_svcs, may be used for this purpose.

Students who do not have a complete immunization record on file when beginning classes will have 30 days to obtain the required immunizations. A campus clinic will be available. **Students who are not in compliance with these requirements within 30 days of the first day of class will be required to withdraw from classes.** The following students are exempt from these requirements: (1) Students who attend classes only in the evening (i.e., after 3:30 p.m.); (2) Students who attend classes off campus only; and (3) Students who enroll in no more than four hours per semester.

Medical and religious exemptions can be requested through the Health Center. Questions and forms should be directed to: UNC Charlotte Student Health Service, Charlotte, NC 28223.

IMMUNIZATION REQUIREMENTS

A. For students 17 years of age and younger

3	DTP (Diphtheria, Tetanus, Pertussis) or 3 Td (Tetanus-diphtheria) doses; one dose must be within the last ten years.
3	Polio (*oral*) doses.
*2	MEASLES (*Rubella*) doses on or after the first birthday.
**1	RUBELLA dose on or after first birthday.
1	MUMPS dose on or after first birthday.

B. For students born after December 31, 1956, to 18 years of age

3	DTP or 3 Td doses; one dose must be within the last ten years.
*2	MEASLES (*Rubella*) doses on or after the first birthday.
**1	RUBELLA dose on or after first birthday.
1	MUMPS dose on or after first birthday.

C. For students born prior to January 1, 1957, through age 49.

Primary series of 3 DTP or 3 Td doses - one dose must be within the last ten years.

A documented Td BOOSTER within the past ten years will be accepted as evidence of the initial series.

**1	RUBELLA dose.

D. For students 50 years of age and older.

Primary series of 3 DTP or 3 Td doses - one dose must be within the last ten years.

A documented Td BOOSTER within the past ten years will be accepted as evidence of the initial series.

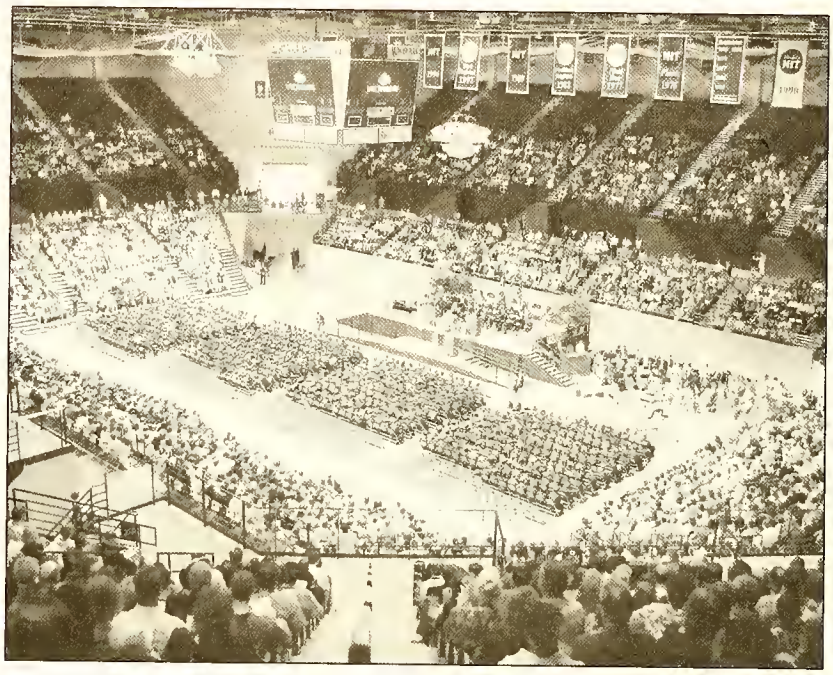
E. For all International Students

Tuberculin Skin Test (PPD) within the 12 months preceding classes.

Chest x-ray if test is positive.

* History of physician-diagnosed measles disease OR laboratory proof of immunity is acceptable. Must repeat measles vaccine if received even one day prior to first birthday.

** ONLY laboratory proof of immunity to rubella is acceptable; physician-diagnosed rubella disease is not acceptable.



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